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The World of Tomorrow

SOME REFLECTIONS ON THE ROLE and the Responsibility of the Engineer

The Peace that Society Seeks Must Come from the Heart Rather than the Mind

AS the first year of War for these United States comes to a close the mist and confusion, attendant upon the formulation and execution of the most gigantic military undertaking in history, begins to give way to sunlight and a semblance of order. Events of recent weeks have served to clarify the atmosphere of a doubt which had been developing during the intervening months since Pearl Harbor. There is nothing an American so fears as uncertainty. With the passing of uncertainty will come the urge and the opportunity for greater reflection upon the means with which the war is being fought and the eventual transformation of such means to the post-war era.

A casual reference to the subject of historical logistics will suffice to indicate that all wars have been testing grounds and laboratories for engineering theories and that despite the horrors of conflict and the abortive use to which the revealed principles of nature have been put they have invariably brought forth new and increased opportunities for a better civilization than that which preceded. True, succeeding generations have not always benefited directly and have often cast aside the possibilities for a better society. That the present conflict is a harbinger of a better world is a consummation devoutly to be wished. That the wish will be consummated, however, is at best a hope, with little in history or human experience to encourage it. Regardless of how this statement may irritate certain zealous individuals, only an excess of zeal, a disregard of human nature and a rejection of history, can lead anyone to a contrary conclusion. Not Heaven on earth but rather man's acceptance of the fact that he must face trial in this temporary abode, seemingly not the best of all possible worlds, should be the goal of his efforts, especially after this most recent holocaust.

Perhaps more than at any time in the past several centuries mankind today is appreciative of the destructive as well as the constructive possibilities of science and its hand maiden engineering. Particularly have engineers become conscious of the moral implications of their practices.

As the civilization in which we live falls under or becomes subordinated to, the direction of a particular group or calling, the tendency of mankind is to divide into two camps; those who are members of this group or calling, together with a few favorably disposed persons and, those who are against whomever and whatever is the directing influence in Society. True it is that dominant groups have almost invariably abused and misused their control but one is safe in saying that regardless of the failings of such groups opposition would still arise. Human nature makes this inevitable. The greater the power the greater the animosity.

Never in history has any group or human calling so dominated the civilization of its time as does engineering the world today. Tomorrow this domination will doubtless be increased manifold. War and peace alike will be largely within the realm of the test tube, the dynamo and the synthetic product. The development and application of such are roles of the engineer. The control of and accountability for the methods, as well as the results, will become the responsibility of the engineering profession. The antagonism of laymen, as has already been manifested on various occasions, will add to the burden of this task. The have's and have nots of the economic system of the past century will find their parallels in the society of tomorrow even though the civilization and prevailing economy be one of plenty. That there may be a way of combatting, or better revamping, human nature is at best a moot question. That man must strive to eliminate the causes of friction none will gainsay.

Accepting these premises of necessity, the engineer has before him a problem possessed of more intangibles and more unknows than any he has heretofore tackled. How best can he approach his task? Dealing as he must with human nature that delights more in the indulgence of its emotions than in application of its mind, he will be compelled to resort to a consideration of controls for such emotions rather than to the disproven methods of pure intellectual development as a panacea for mans social ills. Where are such controls to be found? Without benefit of his customary material proof or physical demonstration, the engineer can best set his course along the path of moral aspirations and responsibilities. Observance of spiritual regulations, acceptance of a higher Authority and recognition of the equal rights of such Authority's creation—mortal man—in all endeavor, offer to the layman and engineer alike, a nobler career and a safer haven than devotion solely to the material conquest of earth's body. Hope and peace arise in the heart of man. It is to the hearts of men, rather than to their heads, that the Engineer must make his appeal. To do this well he must develop his own heart. When he has done so, he, together with the rest of mankind, may come closer than has any generation of the past to a real understanding of the significance of those immortal words of Him who died in the interest of "Peace on Earth to Men of Good Will".

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ENGLISH ARCHITECTS, ENGINEERS, BUILDERS

DISCUSS COMMON ROLES AND PROBLEMS

GENERAL CONFERENCE HELD IN LONDON

DESCRIBED IN *"THE ENGINEER"*

under heading of

Civil Engineers and The Building Industry

Through the collaboration of The Engineering News Record, The American Engineer is privileged to reproduce the details of a most interesting discussion on a subject which calls for collaboration among British Architects, Engineers and Builders. That such groups must work in harmony for the benefit of each, as well as for the public, has been the established policy of the Professional Engineering Society in this country. That all must cooperate with government in planning and building the world of tomorrow must be recognized as a sine qua non of a better society.

THE INCREASING complications and ramifications of engineering services in buildings of all kinds—as well as changes in design—have led to discussions in recent years as to the position of the engineer vis-a-vis the architect and vice versa, and developments in connection with steel-frame buildings and reinforced concrete have tended to intensify these discussions. The Institution of Civil Engineers, however, looking mainly ahead to the post-war period, is tackling the whole problem of the relation of the civil engineer to the building industry in a far more comprehensive manner, even to the extent of bringing in the operatives. With this in view, a conference was recently held at the Institution building in Great George Street, London, to consider the question 'What can the engineer contribute, now and after the war, to the development of the building and civil engineering industries?' Actually the problem goes farther than civil engineering, inasmuch as the mechanical and electrical engineer inevitably come into the picture, but probably the Institution of Civil Engineers regards 'civil engineering' as embracing all three. Be that as it may, the conference was very largely attended, and the familiar Examination Hall at 25, Great George Street, was filled to overflowing. Professor C. E. Inglis (President of the Institution) was in the chair, and in addition to the Right Hon. Lord Portal (Minister of Works and Planning), there were present representatives of the architectural, mechanical, and electrical engineering professions, of civil engineering contractors, and of building trade employers and operatives. The aim of the conference was to take into account the problems which face the building and civil engineering industries, not only in connection with present-day problems, but also those relating to post-war years, the anticipated conditions of the future, as well as the shortcomings of the past, and the need for cooperation between the engineer, architect, quantity surveyor, civil engineering contractor, builder and operatives in the work of reconstruction. Clearly the title of the conference, 'Civil Engineers and the Building Industry,' was more comprehensive than concise, but this vagueness was intentional and the real object of the conference was, so to speak, to clear the ground and bring the parties together. The details of the very complicated problems involved are to be discussed at a series of five other meetings, which will be held at monthly intervals.

"The outstanding general impression of the conference is a complete agreement that cooperation of the nature outlined is essential, but there was some quite plain speaking, from the operatives' and builders' sides especially, as will be seen from the following brief notes of the various speeches which came from selected speakers on this occasion; at future meetings there will be open discussion and the chances are that even greater frankness may be expected.

"Professor C. E. Inglis (President of the Institution of Civil Engineers) opened the conference with a statement of the object in view. He pointed out there is a growing conviction that engineers in the past have not taken sufficient interest in the building industry, and therefore it was desired, on the initiative of the engineers, to consider how such errors of omission can now be rectified. He suggested that the following major questions will have to be answered:—Are we satisfied that the present methods of carrying out work, competitive tendering, and existing forms of contracts are best? If they are not, what can take their place? How are we going to improve welfare conditions, eliminate casualisation, avoid alternating slumps and booms, and provide the reasonable guarantee of employment which it has required a war to achieve, without crippling the country with increased costs of building? What about management in its various aspects, technical, economic, and administrative? Are we satisfied to leave things as they are? Is it not the case that unless we close our ranks and learn to build more scientifically and more economically than in the past, the great tasks of reconstruction which lie ahead will be utterly beyond our capabilities? Consideration must also be given to improved methods of educating and training those destined for a career in the building industry and to the best method of ensuring that the products of research are made known, eagerly sought for, and assimilated eagerly by

industry with the least possible delay. He also touched upon the problems which will arise as to the extent to which the building industry will be able to secure material and labor in the period of reconstruction which is interlinked with the policy of post-war national expenditure. (At one of the future meetings it is intended to give special prominence to this aspect of the situation, assisted by economic authorities whose opinions command respect.)

"Throughout industry generally the belief is now firmly held that for the intelligent allocation of work in the post-war reconstruction period some measure of central control is essential and must be accepted. Professor Inglis fell into line in this respect and stated that for a time our ingrained aversion to national control over industry must be eclipsed by the vision of the great and soul-stirring tasks which lie ahead, tasks which can only be performed by cooperative effort directed in accordance with a policy which has won universal and willing consent.

"The Right Hon. Lord Portal (Minister of Works and Planning) pointed out that if there was to be control of materials after the war—as there undoubtedly would—there would also have to be control of prices and also a certain control of the industry itself. He congratulated the building industry on the fact that most of its materials were produced at home and pointed to the necessity for the preparation of what he termed a balanced programme to prevent such a slump as occurred after the last war. For that purpose there would have to be priorities, regulation, and organization. He particularly impressed the importance of devising means of providing continuity of employment in the building industry and said that a scheme of apprenticeship and education was being prepared to encourage the younger generation to enter the industry with this knowledge that they were assured of something to work for and something to live for. From these points of view alone he foretold a reorganization and reorientation of the building industry on a broader basis than had ever been conceived.

"Mr. W. H. A. Ansell (President, Royal Institute of British Architects), prefacing his remarks with the comment that he was a little apprehensive lest he 'prove to be the most unpopular guest at this feast of reason,' said the most important consideration was not the prosperity of the building industry as such—vital though that might be—but of ensuring that what the industry produced should be of the greatest national benefit, giving to the community generally all the values of utility and beauty that a good building could produce. Prosperity would then follow. Engineers could not be blamed for not taking sufficient interest in the building industry in the past. There had been no particular reason why they should. Until comparatively recent times the majority of buildings were of such a character that the engineer was not particularly concerned with them. After all, civil engineering and building contracting were not exactly the same thing. There were building traditions and ideals, not, perhaps, always tangible, but nevertheless real, which had little place in many civil engineering schemes, and to endeavor to force them into the same mould or even to bring them into the same form of contract was to do a disservice to both, and particularly the building trade. There were, however, many points of contact and the endeavour should be made to recognize the true value of each and encourage a system which would foster them and not compress them into one shape. Mr. Ansell spoke scornfully of any attempt at standardisation of building construction in such a manner that the future generation of architects would look back upon what they might well call the 'reach-me-down' or 'readymade' period, and he shuddered at the prospect now of standardised buildings in standardised towns inhabited by standardised men and women with standardised opinions and habits! He claimed that the best things in the world had been achieved by those who departed from the standardised. Wartime standards must go as soon as possible and be replaced by the intelligent and adventurous use of new materials and methods. It was not for him to say what the engineer could contribute towards this, but vested interests and 'customary procedure' should not be allowed to stand in the way. Finally, in the work of reconstruction he stressed the need of good design and planning, good materials, and good craftsmanship.

"Mr. R. Coppock (General Secretary, National Federation of Building Trades Operatives), speaking from the operatives' point of view, humorously but vigorously criticised engineers for their attitude to the building industry in the past. He recalled the time when 'we used to pass this building and raise our hats as if this was an Institution of the Holy of the Holies,' and asked the members to get down from the pedestal they had occupied for so long and become 'mixers' in the industry and let the building industry have their point of view. Hitherto, engineers in their work on buildings had not been concerned with the welfare and general interests of the workmen, and he mentioned many large civil engineering works in the past as evidence of this. Engineers, he alleged, had been more concerned with scientific development than with human manpower, but he urged them now to become great administrators and develop the human faculty. He specially singled out municipal engineers, however, from this criticism, remarking that they approached the human aspect in a spirit of understanding and helpfulness. Architects and engineers during the past half century, he maintained, have become the creatures of the machine tool in precisely the same way that the operatives had, but it was essential that there should be a closer association of the human faculty and the machine tool. From this he passed to the productivity of the man on the job and assured the conference that this would increase as soon as regularity of employment was provided. He impressed on his audience that we should all be in the peace and that the impact of the peace would be greater than the impact of the war, and deprecated what he termed the battle of pre-fabrication. As a member of a committee for considering alternative methods of building, he described it as the Cranks Committee for the

reason that they had met almost every crank it was possible to meet. Designs for tin houses, steel houses, paper houses, and shellac houses had been put forward, and, he continued—a remark which caused Lord Portal to sit up with a jerk—one had only to see the Ministry of Works and Planning hostels to be horrified for the rest of one's life. And so he went on. The civil engineer was useless without the navvy—the Boulder dam would never have been possible without the navvy—keep the industry as far from politics as possible, etc., ending up with the view that the Institution of Civil Engineers could, by cooperating with all interests concerned with building, play an important part in the remodelling and reorientation of that great industry.

"Mr. T. Haworth (President, National Federation of Building Trades Employers) dotted the i's and crossed the t's of what Mr. Coppock had said and twitted the engineer with having, in the past, paid too much attention to classical culture and too little attention to vocational culture. Expressing apprehension of some of the things that had been said in regard to building the post-war world, he pleaded that it should not consist of just concrete and steel, but that it should be a living world and not one that would be controlled and dictated with little humanity in it, efficient though it might be. A point he especially stressed was training for craftsmanship in the building industry and a raising of the level of this education to include not merely the generally accepted idea of craftsmanship, but more of the technique of building design.

"Mr. H. T. Holloway (President, Federal of Civil Engineering Contracts) first mentioned the possibility of amalgamating the civil engineering and building industries, and, remarking that he did not think it could come about —nor did his Federation—said there were fundamental differences which must be recognised. Civil engineering had to deal mainly with the forces of Nature to a much greater extent than did the building industry, and such works as harbours, railways, bridges, and aqueducts involved far greater risks and responsibilities than were experienced by the ordinary building contractor. Again, the type of labour required in the two cases was entirely different. For civil engineering works a large proportion of the labour could be unskilled or semi-skilled, with a high degree of mechanisation, whereas in the building industry there was a much higher degree of craftsmanship. Moreover, the civil engineering contractor carried out contracts all over the country or the world, so that his outlook was national or international as compared with the more or less local outlook of the building contractor. Nevertheless, there were many opportunities for cooperation between the two industries and something had already been accomplished. In this connection he cited the holidays-with-pay scheme and joint agreements between employers and trade unions as regards wages and conditions, and the settlement of disputes by conciliation. Speaking of standard conditions of contract, having regard to the essential difference between the two industries, he had no hope of arriving at standard conditions of contract, for conditions suitable for engineers might gravely prejudice the building trade. His Federation hoped to re-open this question of conditions of contract with the Institution very shortly and to arrive at agreed conditions as between the building and civil engineering industries. Competitive tendering should have the sympathetic consideration of all concerned and he condemned the system of unlimited competitive tendering as well as the prime cost plus percentage basis. There should be limited competition among firms of equal standing, who could give financial security and a guarantee of quality of work. The policy of accepting the lowest tender irrespective of these two factors was insane. Objection was also taken to the policy of getting specialist firms to quote for such work as ventilating, heating, sanitation, electrical installations, etc., and for these quotations to be included in the final tender. Mr. Holloway preferred that a consulting engineer should be employed who would obtain tenders, in limited competition, for such parts of the work.

"Mr. J. W. Stephenson (President, National Federation of Building Trades Operatives) said this conference was an admission that the engineer recognised he had been in some way in the past divorced from the building industry in a very real manner. There must be much closed relations between the engineer and the building industry; liaison was not sufficient. There must be unity of all the interests concerned and he foretold that those professional bodies which would not cooperate would be subject to Government control and forced to do so.

"Col. C. M. Norrie, the final speaker, concentrated mainly on the position that would arise under the contemplated greater degree of Government control after the war, and pleaded for simplification of the normal procedure associated with Government Departments in order to remove delays and difficulties. To this end he suggested that all the Government Departments having any control over industry should be controlled by, say, a Minister of Construction or some Central Council, which could speak and act for the Government with one voice and as one authority.

"This closed the conference. It will be seen that the problem was dealt with on general lines, as, indeed, was intended, but there remain the more detailed discussion on specific matters. At the first of the later meetings, the leading speaker will be Mr. George Hicks (Parliamentary Secretary to the Ministry of Works and Planning), and the agenda for that meeting is 'The structure of the building industry; its component parts, the position of the operative, the relation of the architect, the engineer, and the surveyor.'

"Further meetings will be held on October 13th, November 10th, December 8th, and January 5th."

THE ENGINEER AS A CITIZEN

A PLEA FOR ACTIVE PARTICIPATION

IN THE AFFAIRS OF GOVERNMENT

WITH SOME REASONS THEREFOR

by

S. C. Hadden—Chairman
Indiana State Highway Commission

An address delivered at the Joint Meeting Program of the National Society of Professional Engineers, the Indiana Society of Professional Engineers and the Indiana Engineering Council held in Indianapolis, October 31, 1942, is presented herewith:

IN THESE TIMES when all we have is in jeopardy, when the old order is changing and when a new world is in the making, it is desirable to reexamine the status of the engineer with reference to the scheme of things in general. The engineer was never too well satisfied with his status under the old order and he should welcome and embrace the opportunity now presented to improve his condition, to extend his influence, and to increase his usefulness.

This discourse is not to be a global excursion into strange lands among still stranger people; it is not an appeal to the engineer to become a soldier of fortune at the four corners of the earth. These remarks will be confined to the opportunities and activities of the engineer in the continental United States. They seek to praise Caesar, not to bury him. The writer would assure the engineers that we regard him as so nearly perfect that one can not resist the temptation to point out wherein and whereby his few remaining imperfections can be removed. As every good wife knows even the best of men is made still better by semi-occasional, judicious, restrained, tolerant and constructive criticism.

SAMUEL C. HADDEN
Chairman, State Highway Commission of Indiana

Any appraisal of the engineer may properly begin with his true sense of ethical values. His attitude toward his fellow engineers is highly commendable. While he may occasionally criticize another engineer, this is done in polite and considerate terms without the use of condemnatory adjectives. He does not show the tendency to work on his brethren with a meat ax which is so often observed in other lines of endeavor. His ability is of such a high order that the public imposes complete trust and reliance in his works. There are very few failures of engineering structures. Given sufficient time and ample funds the engineer can be depended upon to find the best and most economical solution of any professional problem. His general honesty is perhaps his outstanding characteristic. It is seldom indeed that an engineer yields to improper influence or is biased by the acceptance of gratuities. So well established is his reputation for honesty, and so general is the recognition of this inflexible trait in his character, that it is seldom indeed that any improper proposal is made to him. He is very much in love with his work; his devotion to his profession is so complete that it excludes his attention to very many other activities. He has a strong herd instinct, or class consciousness, and he is a little inclined to be thankful that he is not as other men are. He appears to consider this his greatest virtue while many of his sincere admirers consider it his greatest fault. In his undergraduate days he is inclined to affect a distinctive dress which he considers a form of superiority but which others are inclined to regard as an evidence of peculiarity, not to say queerness. His general aloofness from other people works to his disadvantage and that of society in general. Yet there are times when he craves recognition. At such times he is inclined to "bemoan his outcast state," and "trouble deaf Heaven with his bootless cries." He knows that his qualifications eminently fit him for high posts of trust and responsibility. He wonders why such positions so often go to others including lawyers, business men and politicians. He has been slow to appreciate the rather obvious fact that one can not remain a recluse and at the same time gain recognition.

In his association work a marked distinction may be noted between his devotion to professional as distinguished from welfare organizations. He is likely to remain steadfast in his devotion to a purely professional society for a lifetime while in his attitude toward his welfare organizations he is strangely lacking in constancy. If he carried the same attitude in his professional work that he does in his intermittent support of his welfare associations he would forever be building foundations and never rearing super-struc-

tures. His standing with the public and press leaves nothing to be desired so far as his professional attainments and usefulness are concerned. One is greatly impressed with the confidence the public imposes in him and the admiration with which he is regarded even by the somewhat cynical gentlemen of the press.

It is necessary to direct particular attention to the relationship, or perhaps one should say estrangement, which often exists between the engineer and that other very indispensable member of society commonly called the politician. Unfortunately the engineer and the politician sometimes maintain a mutually antagonistic attitude. While the engineer doubtless realizes somewhat vaguely, that we must have such things as politicians, and the politician frankly admires the engineer and his achievements, the engineer is inclined to look askance at the politician while the politician gives the engineer the dog eye. This is indeed most unfortunate since politicians have so much to do with the affairs of government and government is such a large employer of engineers. Somewhere along the line, perhaps in his college days, the average engineer appears to have acquired a conviction which amounts to a fixation that politics is a great evil and that all politicians are very questionable characters who will bear a great deal of watching. Many engineers do not even vote, but of course the same can be said of some other classes of our citizenry. Both he and the public would have much to gain if he would affiliate with a political party of his own choosing and work within that party to make it an instrument of good government. He would do well to renounce once and for all the contempt he often holds for all political actions and activities, since it is only through political organizations that the affairs of government can be organized and administered. He would do well to realize that many, in fact a large percentage, of so-called political workers, are just as sincere and quite as useful as church workers, or lodge workers, or service club workers.

The engineer is among the most modest of men and prefers a self-effacing role. "The noblest service comes from nameless hands and the best servant does his work unseen" might have been, and probably was, said of the engineer. He is not looking for glory, notoriety, or publicity as an individual, but he does desire proper recognition and appreciation of his profession. This is greatly to his credit and should be turned to the advantage of the public. Of course he must give loyal support to the business organization with which he is connected and which provides his livelihood. He can not afford to place his individual fortunes in jeopardy by espousing a cause or embarking on a line of activity which would be displeasing to his employer. Like other men he can not afford to quarrel with his meal ticket. By showing himself friendly, and by making numerous contacts both within and without his profession, he can greatly expand his influence and usefulness. However, it is by working through his professional organizations that he can most effectively bring to bear on many public problems the talents and attributes which have made engineering one of the great and learned professions. Public affairs are now greatly in need of the same sort of attention from the engineer that he has long devoted to purely professional problems.

His opportunities for group action relative to public affairs may well be classified under two headings: first, public affairs of an engineering nature, and, second, public affairs of a general nature. Under the heading of engineering problems to which he can properly devote group attention there should be mentioned first of all state, county and city planning to meet war time conditions and also, and especially, post war conditions. This is not only a public service but legitimate advance work in the interest of engineering employment. His services in this connection will be greatly appreciated by the public and also by the overburdened public officials. As we all know occasional work of this sort has already been done here and there by engineering societies. Some excellent examples of such society work could be cited in Indiana.

The public has much to gain from an application of the engineer's clean and analytical mind, and peculiar talents, to such problems of a general nature as taxes, the public debt, and election reforms. The voice of the engineer should be heard in discussions relative to the levying of taxes of all the various sorts our modern society has made familiar. A much more equitable tax structure would result if proposed levies were analyzed and approved by engineers and other professional men. Since the engineer can not escape the payment of taxes certainly he should give close attention to this vitally important subject. Also we would like to know from time to time the attitude of the engineering profession with reference to public indebtedness. What does he think about the total debt that can safely be incurred? How does he feel that this debt should be retired? Does he favor carrying this debt indefinitely, scaling it down, or liquidating it? These are points which will soon command the best attention of the ablest men in America.

Also the engineer should turn his attention to some very necessary reforms in connection with our elections. While we all render lip service to democracy, consider it the best form of government yet devised and assume that we will always enjoy its blessings, are we doing all we should to make democracy work? It is the feeling of many that if we are to preserve our present form of government, in the defense of which we are waging the second World War in a quarter century, we must make it function more effectively than has been the case in the past. When we note the apathy of the American voter we may well tremble for the future of our country. For example, in the general election of 1940, when Indiana had a favorite son as a presidential candidate, and interest in the contest seemed at white heat, only about 90% of the qualified electors of that state voted in the rural counties and, surprisingly, only from 62 to 79% voted in the great industrial centers. This poor turnout of the voters would have been infinitely worse but for the great efforts put forth by the political organizations to persuade people to go to the polls. Voting is one of the privileges of free self government but it is

(*Continued on Page* 31)

SUGGESTED FORMS OF OATH
FOR PROFESSIONAL ENGINEERS
SUBMITTED FOR EXPRESSIONS OF OPINION

Under the above heading, the Professional Relations Committee of the N. S. P. E. submitted a timely and interesting report at the Annual Meeting held in Indianapolis on October 31st. The report mentioned in the account of the meeting is reproduced here:

October 29, 1942

"Board of Directors
National Society of Professional Engineers
National Press Building
Washington, D. C.

Report of Professional Relations Committee on Suggested Form of Oath

Gentlemen:

"The Professional Relations Committee have considered the Ohio Society of Professional Engineers Suggested Form of Oath for Professional Engineers' which was referred to us in Article 19 of your Minutes of April 16, 1942 meeting at Hotel Ambassador, Atlantic City, New Jersey. We have also studied six other suggested forms of Oaths which for reference purposes are known as 'Vow of Service' by D. B. Steinman, 'The Ritual of the Calling of an Engineer', purported to be written by Rudyard Kipling, 'Obligation of an Engineer' by D. B. Steinman, 'Form of Oath' by Wendell P. Brown, 'Engineers Obligation to Service' known as the Cleveland Oath, and 'Engineers Oath' by S. A. Bauer.

"The Committee also studied the Hippocratic Oath and the Legal Oath which is administered in Ohio at the time successful applicants are admitted to the Bar.

"Your Committee is unable to get a majority report on any form of Oath. We, therefore, recommend that a Special Committee of engineers, who are in easy commuting distance from each other, be appointed to give a round-table study of the oaths referred to above and draft an oath for submission to your Board. We are firmly convinced that an Oath cannot be weighed and judged by correspondence.

"Engineer D. B. Steinman recommends that the decision on an Oath '..... be made by a board of impartial judges including non-engineers, so that the final judging would reflect the professional viewpoint, disinterested literary judgment, and general public reaction.' "

Respectfully submitted,
William C. Kammerer, Chairman
Professional Relations Comm., N. S. P. E.

Proposal No. 1

"We dedicate ourselves to the service of mankind as members of the Engineering Profession.

"We consecrate our professional knowledge and skill to the advancement of human welfare, safety and progress.

"As we benefit by the technical knowledge and public esteem won for the Profession by the Engineers who labored in the past, we shall ever strive to augment that heritage before passing it on to the Engineers who are to follow.

"We therefore affirm our guiding purpose:

"So to live and work as to justify the trust and confidence reposed in the Engineering Profession.

"To carry out professional engagements with generous measure of performance, and with fidelity toward those whom we undertake to serve.

"To foster a spirit of courteous consideration and fraternal cooperation within the Profession.

"To extend encouragement and a helping hand to younger Engineers and to those in need.

"To place Service before profit, the honor and standing of the Profession before personal advantage, and the Public Welfare above all other considerations."

Written by Dr. D. B. Steinman and adopted by the American Association of Engineers. June 17, 1926.

Proposal No. 2

Acknowledging my obligations to my Country, my profession and my Fellow-man; and willingly accepting the responsibility incumbent upon those privileged to practice the profession of Engineering; and recognizing my obligation to assist in the continued advancement and betterment of professional standards —I hereby pledge—

To support the Constitution of the United States of America and of the State of .....

To serve my employer, or to act for my clients in professional matters in no other manner than as a faithful agent, fully respecting their confidences, and accepting no assignments which involve conflicts in allegiance with my employer or clients, and to accept no compensation or gifts in connection with the business of either employer or clients except from them or with their knowledge or approval.

To abide conscientiously by such codes of ethical

practice as may be generally accepted among reputable engineers, avoiding all attempts to injure the reputation, business or practice of any one in the profession.

To guard jealously the standing of the Engineering Profession, conducting my personal and professional life in such manner as to endeavor to bring no reproach upon my profession, or to cause the reputation thereof to suffer impairment in the sight of the public.

Submitted by Wende'l P. Brown
Cleveland, Ohio

Proposal No. 3

Upon this, the occasion of my induction as Professional Engineer, according to the laws of this State ————, I do now recognize and acknowledge my responsibility toward safeguarding of public health, safety and welfare, and I do now pledge myself toward that end.

I do now also pledge that I will devote untiring effort in the years to come to the technical and professional advancement of my calling.

And I do further pledge that I will live and abide by such rules and precepts of ethical professional conduct as are recognized as honorable and proper by those who are now and will be my colleagues.

To all these things, I pledge my honor, and by them I purpose to abide.

(For record purposes to be known as
The S. A. Bauer Oath)

Proposal No. 4

Upon this occasion of my induction as a Professional Engineer registered in accordance with the laws of the State of ————, I do accept all of the obligations as well as the privileges of Profession, binding myself to high standards of conduct, of faith to employer or client, and of concern for the public welfare. And I do promise to countenance none but sound work, to give judgment that is fair and counsel honest. Moreover, in my dealings with fellow engineers, I will abstain from word or act of injury, rather extending all proper cooperation and aid. To these things I pledge my Honor, and, by these things, I purpose to abide.

(For reference purposes to be known as the
Cleveland Oath)

Proposal No. 5

In the presence of my working-brothers and my elders in my Calling, and reverently acknowledging my debt to my Teachers and to the great Engineers of the past, I do hereby solemnly accept the Obligation of an Engineer—binding myself ever to strive to build my Life and my Work on True Lines for the furthering of Human Progress, for the honor of my Profession, and for the approval of the Supreme Master Builder.

Ever mindful of the trust reposed in me by virtue of the high tradition of my Calling, I do solemnly pledge that, to the best of my knowledge and power, I will not suffer or pass or be privy to the passing of Unsound Design, Bad Workmanship of Faulty Material in aught that concerns my work as an Engineer, even though it may be hidden from the eyes of men and known only to my Maker.

My Time I will not refuse; my Thought I will not grudge; my Care I will not deny—toward the Honor, Usefulness, Stability and Perfection of any works to which I may be called to set my hand.

My Fair Wages for that work I will openly take, but no secret profit or conflicting allegiance will I accept; and I will in no way go about to compass or wrest advantage from anyone with whom I may deal.

The Good Name of my Profession I will zealously protect and my own Reputation in my Calling I will honorably guard. I will not lend my name or my aid to aught that is shoddy or deceptive or that will work injury to my Fellowman.

In my conduct as an Engineer before men, I will strive to be true to the high Specifications of my Calling, ever keeping myself in my Representations modest, in my Negotiations dignified, in my Investigations thorough, in my Findings unbiased, in my Counsel honest, and in my Judgment fair.

To my Fellow Engineers I will ever extend fraternal cooperation, and to Younger Engineers encouragement and a helping hand. I will not seek to displace another Engineer nor to hinder his advancement. And I will early and warily strive my uttermost against professional jealousy or the belittling of my Working Brothers in any field of their labor.

To all these things I pledge my Honor and, God helping me, by these things I purpose to abide.

D. B. Steinman

Proposal No. 6

I, ..., in the presence of these my betters and my equals in my Calling, bind myself upon my Honour and Cold Iron, that, to the best of my knowledge and power, I will not hence-forward suffer or pass, or be privy to the passing of, Bad Workmanship or Faulty Material in aught that concerns my works before men as an Engineer, or in my dealings with my own Soul before my Maker.

MY TIME I will not refuse; MY THOUGHT I will not grudge; MY CARE I will not deny towards the honour, use, stability and perfection of any works to which may be called to set my hand.

MY FAIR WAGES for that work I will openly take. MY REPUTATION in my Calling I will honour-

ably guard; but I will in no way go about to compass or wrest judgment or gratification from any one with whom I may deal. And further, I will early and warily strive my uttermost against professional jealousy or the belittling of my working-brothers in any field of their labour.

For my assured failures and derelictions, I ask pardon beforehand of my betters and my equals in my Calling here assembled; praying that in the hour of my temptations, weakness and weariness, the memory of this my Obligation and of the company before whom it was entered into, may return to me to aid, comfort and restrain.

Camp . . . To all these things you have subscribed upon honour and Cold Iron.

Candidate . . . And upon Honour and Cold Iron, God helping me, by these things I purpose to abide.

Camp No. .....
DATED .....
Camp Secretary .....

.....

Obligated Engineer
No. .....

By Rudyard Kipling

Proposal No. 7

I, ..., supplicant for the sanction to practice the calling of engineering in the State of ..... do solemnly pledge, in the name of My Maker and in the presence of those empowered to grant this privilege; that I shall henceforth in all acts and professions recognize the moral and ethical issues involved and shall place spiritual welfare and the common good above material and selfish ends; that I shall endeavor to advance the Art of Engineering and to expand the scope of human knowledge in the interest of my fellow man; that I shall ever use well, and never improperly, the talent, learning or fortune of which I may be possessed; that I shall work unremittingly to enhance the good name and status of my fellow practitioner; and, that forsaking all conflicting ambitions I shall strive unceasingly to be worthy of those engineers whose high purposes and great achievements have made possible this occasion and leave me their humble debtor. To the fulfillment of these commitments, I hereby swear—So Help me God.

By Ingenieur

Proposal No. 8

In the presence of the Divine Author of my being, and assembled at the call of those elders who by virtue of competence and investiture are about to clothe me with the dignity and responsibility of a peer in the vineyard of a great and ennobling calling, I .... do unreservedly pledge my poor talent, my consistent endeavor and my cherished honor to the advancement of the Art of Engineering, to the service of my fellow being, and to the right and truthful application only of the knowledge and principles of Nature and Nature's God as the same are or may become revealed to me. Ever mindful of my debt to Engineers and generations gone and equally aware of an obligation to those unborn I shall henceforth humbly strive to emulate the apparent Will and Works of the Great Engineer of this, our Universe. To such premises and pledges do I solemnly swear unswerving adherence, — So help me God.

By Ingenieur

Proposal No. 9

Acknowledging and ever mindful of my debt to my Maker; my Country; my Profession and my Fellowman; and freely accepting the responsibility incumbent upon those privileged to practice the honorable profession of Engineering; and recognizing my obligation to share in a constant advancement and betterment of professional standards, I hereby pledge myself

To support the Constitution of the United States of America and of the State of .....

To give without reservation of my time, thought, talent and best efforts the the interests and welfare of my Clients, my profession, and the general public, subordinating personal interests thereto.

To act for my clients in professional matters in no other manner than as a faithful agent, fully respecting their confidences, and accepting no assignments which involve conflicts in allegiance.

To abide conscientiously by such codes of ethical practice as may be generally accepted among reputable engineers, avoiding all malicious attempts to injure the reputation, business or practice of my professional brethren.

To guard jealously the standing of the Engineering Profession, conducting my personal and professional life in such manner as to bring no reproach upon my profession, or to cause the reputation thereof to suffer impairment in the sight of the public. So help me God.

Suggested by Ohio Society of Professional Engineers

Hippocratic Oath of Medical Profession

I will look upon him who shall have taught me this Art even as one of my parents. I will share my substance with him, and I will supply his necessities, if he be in need. I will regard his offspring even as my own brethren, and I will teach them this Art, if they would learn it, without fee or covenant. I will impart this Art by precept, by lecture and by every mode of teaching, not only to my own sons but to the sons of him who has taught me, and to disciples bound by covenant and oath, according to the law of Medicine.

The regimen I adopt shall be for the benefit of my patients according to my ability and judgment, and not for their hurt or for any wrong. I will give no deadly drug to any, though it be asked of me, nor will I counsel such, and especially I will not aid a woman to procure abortion. Whatsoever house I enter, there

(*Continued on Page* 31)

REGISTRATION IN NATION'S CAPITAL

DISTRICT OF COLUMBIA SOCIETY

PREPARES DRAFT OF SUGGESTED LEGISLATION

Proposals Mark Noteworthy Advance Toward N. S. P. E. Goal

The suggested Registration Act prepared by the Legislative Committee of the District of Columbia Society of Professional Engineers, with Herman F. Lame as its Chairman, is a real contribution toward a registration and control consistent with the aims and hopes of the Professional Engineering Society. While the so-called Model Law, prepared by cooperating organizations under the sponsorship of the American Society of Civil Engineers, has been approved as a basic instrument by the National Society of Professional Engineers, it is not a Model Law but rather a minimum set of specifications for registration applicable where no more rigid requirements can be made acceptable. As viewed by the Professional Society, a Model Law calls for much more severe tests of qualification and examination than are prescribed in the aforenoted Model. The proposals of the District of Columbia Society are a definite step toward the objective of the N. S. P. E. It is appropriate that the nation's capital should set new and higher standards. May success attend the efforts of the Committee. At the appropriate time, other state societies should support the necessary congressional action. The proposed Act follows:

A BILL

To Regulate the Practice of Engineering and Creating a Board of Licensure and Registration of Professional Engineers in and for The District of Columbia.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that:

SECTION 1. It shall be unlawful for any person to practice or offer to practice professional engineering, as defined in the provisions of this Act, in the District of Columbia, or use in connection with his name or otherwise assume, use, or advertise in the District of Columbia, any title or description tending to convey the impression that he is a professional engineer, unless such person is duly licensed to practice professional engineering.

SECTION 2. The term "professional Engineer" as used in this Act shall mean a person who is qualified, by reason of his knowledge of mathematics, the physical sciences, and the principles of engineering, acquired by professional education and practical experience, to engage in the practice of professional engineering as hereinafter defined.

The practice of professional engineering within the meaning and intent of this Act includes any professional service, such as consultation, investigation, evaluation, planning, design, or responsible supervision of construction and operation in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works, or projects, wherein the public welfare, or the safeguarding of life, health, or property is concerned or involved, when such professional service requires the application of engineering principles and data. The execution, as a contractor, of work designed by others, or the supervision of the construction of such work as a foreman or superintendent, shall not be deemed to be the practice of professional engineering; nor shall the operation or maintenance of boilers, machinery, or equipment be deemed to be such practice, when the operators are duly licensed under the provisions of the Act of Congress entitled "An Act to regulate steam engineering in the District of Columbia" approved February 28, 1887, and as amended.

The term "responsible charge" as used in this Act shall mean the control and direction of the investigation, design, or construction of engineering work requiring professional skill, initiative and independent judgment.

SECTION 3. A Board for the licensure and registration of professional engineers is hereby created to be known as "The District of Columbia Registration Board for Professional Engineers" and which is hereinafter referred to as "the Board".

It shall be the duty of the Board to administer the provisions of this Act. The Board shall consist of five registered professional engineers, who shall be appointed by the Commissioners of the District of Columbia, giving due consideration to nominees recommended by representative engineering societies in the District of Columbia. The Board shall at all times include one representative for each of the chemical, civil, electrical and mechanical branches of professional engineers. The members of the first Board shall be appointed within two months after the enactment of this Act to serve for the following terms: One member for one year, one member for two years, one member for three years, one member for four years and one member for five years from the date of their appointment, or until their successors are duly appointed and qualified. Every member of the Board shall receive a certificate of his appointment from the Board of Commissioners of the District of Columbia, and before beginning his term of office, shall file with the Secretary of the Board of Commissioners his written oath for the faithful discharge of his official duty. Each member of the Board

first appointed hereunder shall be licensed, under this Act, by the Board. On the expiration of the term of any member of the Board, the Board of Commissioners of the District of Columbia shall appoint for a term of five years a registered professional engineer to take the place of the member whose term on said Board is about to expire. Each member shall hold office until the expiration of the term for which such member is appointed or until a successor shall have been duly appointed and shall have qualified. An appointment to fill an unexpired term on the Board shall be for the period of such unexpired term.

SECTION 4. Each member of the Board shall be a citizen of the United States, shall have been engaged in the practice of the profession of engineering for at least twelve years, and shall have been in responsible charge of important engineering work for at least five years. At the time of appointment each member shall have been in the active practice of the profession of engineering in the District of Columbia, for five of the six years preceding his appointment.

SECTION 5. Each member of the Board shall be entitled to such reasonable compensation for his services as may be approved by the Board of Commissioners when actually engaged in the work of the Board: *Provided*, That the total amount of such compensation shall not exceed the unobligated balance remaining with the Secretary of the Board on the 30th day of June of each year.

SECTION 6. The Board of Commissioners may remove any member of the Board for misconduct, incompetency, neglect of duty, or for any other sufficient cause. Vacancies in the membership of the Board shall be filled by appointment by the Board of Commissioners for the unexpired term as provided in Section 3.

SECTION 7. The Board shall hold a meeting within ten days after its members are first appointed and thereafter shall hold at least two regular meetings each year. The Board shall elect annually from its members the following officers: A Chairman, a Vice-Chairman, and a Secretary, who shall act as Treasurer. A quorum of the Board shall consist of not less than three members, and no action shall be taken without three members in accord.

SECTION 8. The Board shall have the power to adopt and amend all by-laws and rules of procedure, not inconsistent with the Constitution of the United States and the laws of the District of Columbia, which may be reasonably necessary for the proper performance of its duties and the regulation of the proceedings before it. The Board shall adopt and have an official seal.

In carrying into effect the provisions of the Act, the Board, under the hand of its Chairman and the seal of the Board, may subpoena witnesses and compel their attendance, and also may require the production of books, papers, documents, et cetera, in a case involving the revocation of a license or the practicing or offering to practice without a license. Any member of the Board may administer oaths or affirmations to witnesses appearing before the Board. If any person shall refuse to obey any subpoena so issued, or shall refuse to testify or produce any books, papers, documents, et cetera, the Board may present its petition to the District Court of the United States for the District of Columbia, setting forth the facts, and thereupon the Court shall, in a proper case, issue its subpoena to such person, and compel his attendance before the Court and there to testify and to produce such books, papers, documents, et cetera, as may be deemed necessary and pertinent by the Board.

SECTION 9. The Secretary of the Board shall receive and account for all monies derived from the provisions of this Act and shall keep such monies in a separate fund to be known as the "Professional Engineers' Fund". Money from such fund shall be paid out only by the Secretary, upon itemized vouchers approved by The Chairman and attested by the Secretary of the Board. All monies in said fund are hereby specfiically appropriated to the use of the Board. The Secretary of the Board shall give a surety bond to the Board of Commissioners in such sum as that Board may determine. The premium on said bond shall be regarded as a proper and necessary expense of the Board and shall be paid out of the Professional Engineers' Fund. The Secretary of the Board shall receive such salary as the Board shall determine, in addition to the compensation provided for in Section 5. The Board may employ such clerical or other assistants as are necessary for the proper performance of its duties, and may make expenditures of this fund for any purpose which, in the opinion of the Board, is reasonably necessary for the proper performance of its duties under this Act. Under no circumstances shall the expenses incurred under this Act be a charge against the funds of the United States or the District of Columbia.

SECTION 10. The Board shall keep a record of its proceedings and a register of all applications for a license, which register shall show (a) the name, age and residence of each applicant; (b) the date of the application; (c) the place of business of such applicant; (d) his educational and other qualifications; (e) whether or not an examination was required; (f) whether the application was rejected; (g) whether a certificate of registration was granted; (h) the date of the action of the Board; and (i) such other information as may be deemed necessary by the Board.

The records of the Board shall be prima facie evidence of the proceedings of the Board set forth therein, and a true copy thereof, duly certified by the Secretary of the Board under seal, shall be admissible in evidence with the same force and effect as if the original were produced.

On or before the 1st day of August of each year, the Board shall submit to the Board of Commissioners of the District of Columbia a report of its transactions of the preceding fiscal year, and also a complete statement of the receipts and expenditures of the Board, attested by affidavits of its Chairman and Secretary.

SECTION 11. A current file of registered professional engineers shall be kept by the Secretary of the Board and shall be made available for the use of the Office of the Inspector of Buildings.

A printed and bound roster showing the names and

places of business of all registered professional engineers shall be issued by the Secretary of the Board during the month of February of each year. Copies of this roster shall be mailed to each person so registered, placed on file with the Secretary of the Board of Commissioners, and furnished to the public upon request.

SECTION 12. The following shall be considered evidence, satisfactory to the Board, of the required qualifications.

1. *For Registration as a Professional Engineer*

(a) That the applicant is at least 25 years of age, is of good moral character, is a citizen of the United States, or has legally declared his intention of becoming a citizen, is a graduate from an engineering curriculum of four years or more in a school or college approved by the Board as of satisfactory standing, has a record of an additional four years or more of experience in engineering work of a character satisfactory to the Board, indicating that the applicant is competent to practice professional engineering, has passed the prescribed examination, or

(b) That the applicant is at least 25 years of age, is of good moral character, is a citizen of the United States, or has legally declared his intention of becoming a citizen, possesses knowledge and skill approximating that attained through graduation from a four-year approved engineering curriculum, has a specific record of eight years or more of engineering work of a character satisfactory to the Board indicating that the applicant is competent to practice professional engineering, has passed the prescribed examination, or

(c) That the applicant is at least 25 years of age, is of good moral character, is a citizen of the United States, or has legally declared his intention of becoming a citizen, has previously been certified by the Board as an Engineering in Training, has a record of four years or more of experience in engineering work of a character satisfactory to the Board indicating that the applicant is competent to practice professional engineering, has passed the second stage of the prescribed examination, or

(d) That the applicant is at least 35 years of age, is of good moral character, is a citizen of the United States, or has legally declared his intention of becoming a citizen, has a specific record of fifteen years or more of lawful practice in Professional Engineering work of a character satisfactory to the Board indicating that the applicant is competent to practice professional engineering, and has passed the prescribed examination.

2. *For Certification as an Engineer in Training*

(a) That the applicant is at least 21 years of age, is of good moral character, is a citizen of the United States, or has legally declared his intention of becoming a citizen, is a graduate from an engineering curriculum of four years or more in a school or college appoved by the Board as of satisfactory standing, has passed the first stage of the prescribed examination, or

(b) That the applicant is at least 21 years of age, is of good moral character, is a citizen of the United States, or has legally declared his intention of becoming a citizen, is a graduate of an accredited high school of the District of Columbia, or a high school whose credits are accepted by the State University in the state in which same is located or the equivalent thereof, as determined by the Board, has educational qualifications indicating knowledge and skill approximating that attained from an approved four years engineering curriculum and actively engaged in engineering work of a character satisfactory to the Board for four years or more, under the supervision of a legally qualified Professional Engineer, has passed the first stage of the prescribed examination, or

(c) That the applicant has a similar certification, granted by a State or territory, based on a written examination having substantially the same requirements as set forth above and of a character satisfactory to the Board.

In considering the qualifications of applicants, teaching of engineering subjects in an engineering school approved by the Board, may be construed as engineering experience.

The Board may give credit, not in excess of one year, for satisfactory graduate study in engineering, in counting the years of experience in Section 12-1 (a).

The satisfactory completion of each year of approved curriculum in engineering in a school or college approved by the Board shall be construed as equivalent to a year of experience in Section 12-1 (b) and a year of study in Section 12-2 (b).

The Board may accept graduation in a curriculum other than engineering from a college or university of recognized standing, as equivalent to two years of experience in Section 12-1 (a) and (b), and 12-2 (a) and (b).

The Board may give credit, year for year, for experience gained subsequent to the attaining of an equivalent of the minimum requirements for certification as Engineer in Training in 12-1 (c).

Any person having the necessary qualifications prescribed in this Act to entitle him to registration shall be eligible for such registration although he may not be practicing his profession at the time of making his application.

The Board may, upon the payment of a fee of $25.00, issue a temporary permit to practice professional engineering to an engineer who is not a citizen of the United States and who has not declared his intention of becoming a citizen, but who submits satisfactory evidence of established and recognized professional standing in his own country and who submits certification as to character and qualifications from at least two registered professional engineers of the District of Columbia. Such temporary permits shall entitle the holder to practice professional engineering in the District of Columbia but only in connection with the specific project for which it is granted, and shall be subject to the same restrictions regarding annual registration and revocation as a license issued as otherwise provided by this article. The annual printed list shall include a separate list of the persons to whom such temporary permits have been granted.

SECTION 13. All applications, affidavits, and agreements shall be in writing, on forms prescribed and furnished by the Board.

Applications for registration as Professional Engineers

shall be on the prescribed form and shall contain statements made under oath, showing the applicant's education and detailed summary of his technical work, and shall contain not less than 5 references, of whom three or more shall be engineers having personal knowledge of his engineering experience.

Applications for certification as Engineer in Training shall contain statements made under oath, showing the applicant's education, detailed summary of his technical work, and in the case of Section 12-2 (b) shall refer to the Professional Engineer by whom employed.

The registration fee for Professional Engineer shall be $25.00, which shall accompany the application. Candidates for registration, failing an examination, may apply for re-examination at the expiration of six months without payment of additional fee. Subsequent examinations will be granted upon payment of a fee to be determined by the Board.

The examination fee for certification as Engineer in Training shall be $15.00, which shall accompany application to cover the first stage of the examination. The fee for subsequent examinations, in the event of failure, shall be as determined by the Board, and shall accompany the applications for re-examination. The initial examination fee of $15.00 shall be credited to the applicant. An additional fee of $10.00 shall accompany the application by an Engineer in Training for registration as a Professional Engineer.

Should the Board deny the issuance of a certificate of registration to any applicant, the fee deposited shall be retained as an application fee.

SECTION 14. Examinations shall be held at such time and place in the District as the Board shall determine, and at least twice each year.

The Board shall provide for the examination of all applicants for registration as Professional Engineers. Such examination shall be written or oral, or both, as determined by the Board, and shall test the applicant's fitness to practice Professional Engineering.

The scope of the examination and methods of procedure shall be prescribed by the Board with special reference to the applicant's ability to design and supervise engineering works so as to insure the safety of life, health, and property.

The prescribed examination shall be divided into two stages.

The first stage of the examination shall test the applicant's knowledge of fundamental engineering subjects, including engineering mathematics and the basic engineering sciences. The applicant shall be permitted to take this part of the professional examination prior to his completion of the requisite years of experience in engineering work at any regularly held examination subsequent to the attainment of the minimum qualifications set forth in Section 12-2 (a) and (b), and satisfactory passage of this portion of the examination by the applicant shall constitute a credit for the life of the applicant, or until he shall have been registered.

The second stage of the examination shall cover the more advanced professional training of engineers as amplified and matured by practical experience and by continued technical and cultural study, and shall shall include engineering economics, ethics, and practice, and tests of the applicant's ability to apply the engineering principles and methods in a particular practice.

SECTION 15. The Board shall issue a certificate of registration to any applicant, whom the Board shall have determined to have satisfactorily met all the requirements of the Act.

The original certificate of registration issued shall be deemed to be the license referred to herein, and shall be conspicuously displayed in the place of business of the registrant.

In the case of a registered Professional Engineer, the certificate of registration shall authorize the practice of professional engineering.

The Board shall issue a certification of qualification to applicants who have successfully met all the requirements for certification as an Engineer in Training in Section 12 of this Act. Such certification of qualification for Engineer in Training shall indicate the trainee's eligibility to perform engineering work solely under the supervision of a legally qualified Professional Engineer.

Certificates of registration and certifications of qualifications of Engineers in Training shall show the full name of the Professional Engineer or the Engineer in Training, and shall have serial numbers, and shall be signed by the Chairman and the Secretary of the Board under seal of the Board.

Every registered Professional Engineer shall provide himself with a seal, of the design to be prescribed by the Board, bearing the registrant's name and number, and the legend "Registered Professional Engineer", and shall impress the same upon all professional documents, specifications, plans, plates, reports, et cetera, prepared by the registrant, *Provided* that a rubber stamp facsimile thereof may be used in addition to the seal on tracings from which prints are to be made. It shall be unlawful for anyone to stamp or seal any documents with said seal after the certificate of the registrant named thereon has expired or has been revoked, unless such certificate shall have been renewed or reissued.

SECTION 16. Annual certificates of registration and certifications of qualification of Engineers in Training shall expire on the last day of the month of December following their issuance or renewal and shall become invalid on that date unless renewed. It shall be the duty of the Secretary of the Board to notify every person registered under this Act, of the date of the expiration of such certificate, or certification, and the amount of the fee that shall be required for its renewal for one year; such notice shall be mailed to the last known address of the registrant, or trainee, at least one month in advance of the date of the expiration of said certificate. Renewal may be affected at any time during the month of December by the payment of a fee of two dollars ($2.00). The failure on the part of any registrant, or trainee, to renew his respective certificate or certification annually in the month of December as required above shall not deprive such person of the right

of renewal, but the fee to be paid for the renewal of a certificate after the month of December shall be increased ten per centum for each month or fraction of a month that payment of renewal is delayed; provided, however, that the maximum fee for delayed renewal shall not exceed twice the normal renewal fee.

SECTION 17. At any time within one year after this Act becomes effective, upon due application therefor and the payment of the registration fee of $25.00 for professional engineers, the Board shall issue a certificate of registration without oral or written examination to any professional engineer who shall submit evidence under oath, satisfactory to the Board, that he is of good moral character, that he is a citizen of the United States, or has legally declared his intention of becoming a citizen, that he has been a resident of the District of Columbia for at least one year immediately preceding the date of his application, and was practicing professional engineering at the time this Act became effective, and has performed work of a character satisfactory to the Board.

After this Act shall have been in effect one year, the Board shall issue certificates of registration only as provided for in Section 12 or Section 18 thereof.

SECTION 18. Nothing in this Act shall be construed as excluding a qualified or registered architect of the District of Columbia from such engineering practice as may be incident to the practice of his profession; or as excluding a professional engineer registered under the provisions of this Act, from such architectural practice as may be incident to the practice of professional engineering.

SECTION 19. The Board may, upon application therefor, and the payment of a fee of ten dollars ($10.00), issue a Certificate of Registration as a Professional Engineer to any person who holds a certificate of registration issued to him by proper authority of the National Council of State Boards of Engineering Examiners, or of the National Bureau of Engineering Registration, or of any State or Territory or Possession of the United States, or of any Country, provided that the requirements for the registration of professional engineers under which said certificate of registration was issued do not conflict with the provisions of this Act and are of a standard not lower than that specified in Section 12 of this Act.

SECTION 20. The Board shall have the power to revoke the certificate of registration of any registrant who is found guilty of:

(a) The practice of any fraud or deceit in obtaining a certificate of registration.

(b) Any gross negligence, incompetency, or misconduct in the practice of professional engineering as a registered professional engineer.

Any person may prefer charges of fraud, deceit, gross negligence, incompetency, or misconduct against any registrant. Such charges shall be in writing, and shall be sworn to by the person making them and shall be filed with the Secretary of the Board.

All charges, unless dismissed by the Board as unfounded or trivial, shall be heard by the Board within three months after the date on which they shall have been preferred.

The time and place for said hearing shall be fixed by the Board, and a copy of the charges, together with a notice of the time and place of hearing, shall be personally served on, or mailed to the last known address of such registrant, at least thirty days before the date fixed for the hearing. At any hearing, the accused registrant shall have the right to appear personally and by counsel, to cross-examine witnesses appearing against him, and to produce evidence and witnesses in his own defense.

If, after such hearing, three or more members of the Board vote in favor of finding the accused guilty, the Board shall revoke his license and shall order him to return his certificate of registration to the Board.

The Board, for reasons it may deem sufficient, may reissue a certificate of registration to any person whose certificate has been revoked, providing three or more members of the Board vote in favor of such reissuance. A new certificate of registration, to replace any certificate revoked, lost, destroyed, or mutilated may be issued, subject to the rules of the Board, and a charge of three dollars ($3.00) shall be made for such issuance.

Any person who shall feel aggrieved by any action of the Board in denying or revoking his certificate of registration may appeal therefrom to the District Court of the United States for the District of Columbia, and, after full hearing, said Court shall make such decree sustaining or reversing the action of the Board as to it may seem just and proper.

SECTION 21. Any person who shall practice, or offer to practice, professional engineering in the District of Columbia without being registered in accordance with the provisions of this Act, or any person presenting or attempting to use as his own the certificate of registration or the seal of another, or any person who shall give any false or forged evidence of any kind to the Board or to any member thereof in obtaining a certificate of registration, or any person who shall falsely impersonate any other registrant of like or different name, or any person who shall attempt to use an expired or revoked certificate of registration, or any person who shall violate any of the provisions of this Act, shall be guilty of a misdemeanor and shall, upon conviction, be sentenced to pay a fine of not less than one hundred dollars ($100.00), nor more than five hundred dollars ($500.00), or suffer imprisonment for a period not exceeding six months, or both.

It shall be duty of all duly constituted officers of the law of the District of Columbia to enforce the provisions of this Act and to prosecute any persons violating same. The Corporation Counsel of the District of Columbia or his assistant shall act as legal adviser of the Board and render such legal assistance as may be necessary in carrying out the provisions of this Act.

SECTION 22. This Act shall not be construed to prevent or to affect:

(a) The practice of any other legally recognized profession or trade; or

(b) The practice of a person not a resident of and having no established place of business in the District of Columbia, or who has recently become a resident practicing

(*Continued on Page* 31)

THE ENGINEERING ORGANIZATION OF SOCIETY

CALLS FOR SPIRITUAL FOUNDATION

HISTORY AND REASON PORTRAY

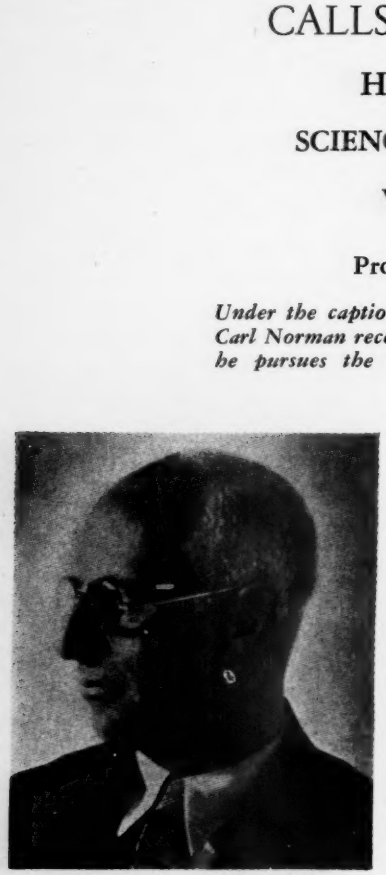
SCIENCE AS A MEANS TOWARD HUMAN ENDS

Whose Nature is Revealed By Religion

by

Professor C. A. NORMAN — *Ohio State University*

Under the caption of "Engineering Education and Spiritual Fundamentals" Professor Carl Norman recently touched upon a theme that is eternal and universal. In this issue he pursues the subject and uses history and text to support his present topic.



PROFESSOR CARL A. NORMAN
Engineer—Educator—Inventor
Professor of Machine Design
Ohio State University

SUMMARY

THE DEMAND of Professor C. Hale Sutherland and the Educational Committee of the National Society of Professional Engineers that engineering education and our civilization generally be founded on a strong spiritual foundation seems to have met with much favorable reception. Engineering suggestions must not, however, be confined to mere generalities. It is an engineer's business to assure himself that a suggestion is compatible with the findings of science and with human experience, and then reduce it to specific suggestions for steps to be taken.

In an article on Science and Religion which appeared in *The American Engineer* of March-April, 1942, the writer has already discussed the scientific permissibility of religious ideas. Reprints of this article may be secured free of charge by writing to him. In an article entitled *Engineers and Social Management* in the *BENT of Tau Beta Pi* of April 1942 were set forth the dire consequences resulting from the complete abandonment of the religious attitude in economic affairs, as done by Adam Smith in his book *The Wealth of Nations;* and there was also discussed the benefits resulting from the application of Christian principles to economic life in the medieval ages. Reprints of this article are also available free of charge.

In the present article is set forth somewhat more fully how neither philosophy, nor science, nor even engineering seems able to save a nation or a civilization in which religion has become ineffective; certain phases of the medieval experiment are discussed more fully; and then some specific suggestions are given as to what our social organization should be like and what it should accomplish. A repetition of parts of the second paper above mentioned is given to hold the argument together.

INTRODUCTION AND SETTING

It is of interest to note that the demand of Professor C. Hale Sutherland and the Educational Committee of the National Society of Professional Engineers for a strong spiritual or religious foundation for our democracy seems to find considerable support in the strong emphasis President Roosevelt has given the attitude that we are fighting for Christian principles and the Christian religion.

In the fire-side address accompanying his declaration of unlimited emergency the president said that the issue was between "pagan brutality and the Christian ideal", and that we chose the latter; also that we had "abiding faith in the vitality of our constitutional republic as a perpetual home of freedom, of tolerance, and of *devotion to the word of God.*" In later messages to Congress our adherence to the principles of Christianity were again stressed. Finally, in his note to President Vargas of Brazil on that country's declaration of war against the Axis, Mr. Roosevelt said: "The action taken by your government has hastened the coming of the inevitable victory of freedom over oppression, *of Christian religion over the forces of evil and darkness.*" (All italics are the writer's.) In other words, while stress is put on our fight for freedom, this freedom is always coupled with an emphasis on Christian principles. It is as if the president felt that only on this religious basis can freedom be sound and secure. With this attitude I take it that Professor Sutherland and the Educational Committee of the National Society of Professional Engineers will agree. I certainly do.

This attitude is of course in complete harmony with the attitude of those early settlers in whose indomitable spirit this nation originated. We all know that the loyalty of the Pilgrim Fathers to their faith was such that it made them forsake their homes in England and brave the wilderness here in order that they might adhere to it unhampered. We also know how stern was the piety of the other Puritan settlers of New England. But even the "gay cavaliers" of such states as Maryland and Virginia took their religion in dead earnest. The Virginia House of Burgesses, the first legislature to meet in America, enacted that "all persons whatsoever upon Sabbath days shall frequent divine service and sermons, both forenoon and afternoon." As for the Maryland assembly, in an act known of all things as "The Toleration Act", it decreed that any person denying the divinity of Christ and certain other fundamental Christian doctrines, should be put to death.[1]

It is true that later on the Christian coloring of religion had for a while a tendency to vanish in this country. The Declaration of Independence, while a thoroughly religious document, appeals to the "Laws of Nature and Nature's God", but does not mention Christ. A friend of mine who has made a life study of Lincoln, claims, though perhaps not justly, that Lincoln does not mention Christ once in all the literature he has examined. Washington, though a good church attendant and supporter of his local church,

[1]See Beard, *The Rise of American Civilization,* pp. 37 and 64.

is yet by Beard classed with Jefferson, Paine, John Adams, Franklin, and Madison among the Unitarians or Deists.[2]

Yet, liberals in their religion as these men may have been, they are strongly characterized by their faith in a divine justice, a divine guidance, or a providence. It is "with a firm reliance on the protection of Divine Providence" that the signers of the Declaration of Independence put their names to that crucial document. Jefferson at a later epoch "trembles for his nation when he thinks that God is just". And from Benjamin Franklin, that free, and morally not particularly strait-laced spirit, comes this remarkable statement, which, considering the speaker's scientific and technical achievements, should be of particular interest to engineers and scientists. It was made in the Constitutional Convention in 1787 at a time of great uncertainty and difficulty:

"In this situation of this assembly, groping as it were in the dark to find political truth—how has it happened, sir, that we have not hitherto once thought of humbly applying to the Father of Light to illuminate our understanding? In the beginning of our contest with Great Britain, when we were sensible of danger, we had daily prayer in this room for divine protection. Our prayers, sir, were heard, and they were graciously answered. All of us who were engaged in the struggle must have observed frequent instances of a superintending Providence in our favor . . . And have we now forgotten that powerful friend? or do we imagine we no longer need His assistance? I have lived, sir, a long time; and the longer I live, the more convincing proofs I see of this truth,—that God governs in the affairs of men.[3]"

Perhaps even more striking is Abraham Lincoln's declaration quoted by L. E. Chittenden:

"That the Almighty does make use of human agencies and directly intervenes in human affairs is one of the plainest statements of the Bible. I have had so many evidences of his direction, so many instances when I have been controlled by some other power than my own will, that I can not doubt that this power comes from above. I frequently see my way clear to a decision when I am conscious that I have no sufficient facts upon which to found it. But I can not recall one instance in which I have followed my own judgment, founded upon such a decision, where the results were unsatisfactory; whereas in almost every instance where I have yielded to the views of others, I have had occasion to regret it. I am satisfied that when the Almighty wants me to do or not to do a particular thing, he finds a way of letting me know it. I am confident that it is his desire to restore the Union. He will do it in his own good time. We should obey and not oppose his will."[4]

This quotation is of particular interest because it does not only express a belief in Providence, but gives also an idea of how, in Lincoln's experience, Providence acts. It acts according to Lincoln's view by creating convictions in men's minds in a way akin to feeling and intuition more than to clear reasoning. Lincoln in this sense is a *mystic*. It is of interest to note that Professor W. T. Stace, who spent twenty years in India as a government official, winds up his otherwise entirely empirical philosophy with the declaration that he believes mystic knowledge possible and in fact the only possible source of our knowledge of the Ultimate.[5]

To engineers, as to scientists, this attitude should be a particularly welcome one since it does not ask us to believe in a Providence which breaks through the laws of nature. These laws are largely probability laws and permit of exceptions, but the chances against such exceptions are in most cases so enormous that we should not figure on them.

However, according to the attitude of a number of philosophers whom I quoted in an article on *Science and Religion*, published in the March-April number of *The American Engineer* of 1942 God (or the universe) realizes himself through us, struggles with us, "is working in us and through us for the realization of a higher humanity."[6] If we help in his struggle toward his great goal, he is sure to help us. This is the essence of Providence, in as far as it is compatible with modern science.

HISTORICAL VERIFICATION

While many outstanding scientists agree that human intuition and religious instinct must be our guide in those deepest problems of existence in which mathematical equations and scientific experiments fail to guide us, yet, engineers differ from the great mass of scientists in regularly considering human tradition and experience before they make their decisions. This habit of theirs has saved them from making such ghastly mistakes as made those nineteenth-century scientists who through premature generalizations were led to try to explain everything in the universe, including life and consciousness, in purely mechanistic and atomistic terms.

Now, the experiences of humanity at large are laid down in history and it therefore becomes incumbent on us to try to ascertain to what extent the course of history squares with our religious ideas and notions,—particularly the idea of a dominating purpose; a guiding providence; and a cosmic justice.

In doing this, we must not approach history with preconceived answers and a closed mind. There has been much sinning in this respect. From a narrow, spotty, or dogmatic reading of the Bible, we come to certain pet ideas, and then proceed to disregard history or the world entirely if its course does not seem to tally with those ideas. While we should not disregard the intuitions of great religious geniuses, least of all those of Christ, yet we may well look to history for a revelation of what God's purpose and the methods of Providence are. Do not let us forget, that even if we stick to the Bible alone for our information, its longest and most varied historical part is contained in the Old Testament; and even if we regard Christ and his achievement as the focal point in all history, it is certainly of supreme interest to us to note what world events led up to his coming.

Better and more broad-minded it would seem to be to take in a much wider sweep of history, remembering that the Jews were not the only human beings in the world, and that the very essence of Christianity is that it is a religion for all of humanity and for all time.

When we begin our historic survey, we may perhaps do it with a semi-paradoxical utterance of Will Durant in his well known work THE LIFE OF GREECE. On page 21 he says:

"A nation is born stoic and dies epicurean." He might perhaps better have said: "A civilization is born religious and dies philosophical." In fact, he comes very close to saying so in his chapter on "The Return to Religion" (page 657). The Greeks who break into the limelight of history through their heroic stand against the Persians, are a group of people shot through and through with very concrete and childlike religious notions. The art and drama which give the great age of Greece its dazzling splendor, are thoroughly religious. When art becomes humanized, and philosophy begins to quibble with religion, decline is there. We may forever lament the victim the people of Athens chose in putting Socrates to death; yet, the reason they gave for so doing, namely that he undermined the faith in the gods, may have shown a deep, though inarticulate, sense of the seriousness of what was happening. Socrates no doubt still had the illusion that he could save his day by his philosophizing. Plato, his great disciple, evidently had no such illusion, for he refused a chance to try to put his ideas to a test by actually organizing a society on his principles. As for Aristotle, the great realist, he was a tutor in the house of that very king of Macedonia who put an end to Greek independence forever, and his pupil, Alexander, recast the East-Mediterranean world into an empire.

Durant seems to feel that that last rite of philosophy, skepticism, automatically leads back to religion and thus completes the cycle; but if this is so, it is not a really life-giving religion it

[2]See Beard, *The Rise of American Civilization*, p. 449.
[3]Here quoted from a speech in Congress by Congressman Robertson of Virginia.
[4]L. E. Chittenden, *Recollections of President Lincoln and His Administration*, Harper and Brothers, p. 448.
[5]See his *Nature of the World*, Princeton Univ. Press, p. 248.
[6]Boodin, *The Social Mind*, Macmillan, 1939, p. 532.

leads back to, but an escape religion, a complete abandonment of the intellectual. It may be said of course, that that other late branch of ancient philosophy, stoicism, is as much a religion as a system of thought, and actually has for its object to tie man to God and to the cosmic whole. Yet, stoicism, with its emphasis on submission to the inevitable, is also a philosophy of defeat and death; and it is remarkable that when it finally reaches the imperial purple, and a stoic philosopher, Marcus Aurelius, becomes the ruler of the Greco-Roman world, this marks the beginning of the end of that world, the final stage in that second-century-line of great and outstanding emperors, who lifted the empire to the height of its glory.

No, the sad case seems to be that philosophy without faith, without religious intuition, leads to nothing but bankruptcy. New life, when it came into the ancient world, did not come from a giant of analysis and verbal dissection. It came from a humble Galilean, a man intellectually so apparently unbalanced that he claimed himself to be the son of God, and got millions of other humans to feel that they could become God's children also. Yet, in this there no doubt was a great truth, a truth which keen intellectuals like Whitehead, Boodin, Montague and others now express in somewhat learned terms, but which then was expressed in a language so simple that even a child and a simple fool could understand it. What language is greater? For is not language simply a means of arousing in fellow human beings certain feelings and reactions? And what language was ever more effective than that of Christ, which gave a dying world the strength to go forth and regenerate itself, and in time to give birth to a great and most wonderful new civilization. Of course, there were other elements entering into this development, and of them we must now speak.

GOD AS AN AVENGER. There has of late been a strong tendency in American religion to make God out a namby-pamby "father", who had nothing but love for his children, no matter how wayward and utterly at variance with his desires they are.

It is difficult to see what justification there is for such an attitude, even on the basis of the New Testament. The most orthodox persuasions still believe that, even if Christ was God, he was also true man, with human feelings and sensations and agonies. And this man God Jesus, to accomplish his ends, did not hesitate to subject himself to the most terrible torture his day and era practiced,—the death on the cross.

Now, if there is anything that seems clear in history, it is that nations and civilizations which have become spiritually stagnant and decadent, are ruthlessly swept away. Though the faith which was to give new life to the world was born within the Roman empire, that empire itself was broken down and annihilated, and the Christian world which superseded it was built largely on tribes and human elements of the kind that had wrought the destruction. And the Christian church itself, when in the eastern and southern part of the Mediterranean littoral, it had become over-dogmatized, over-officialized, over-ascetized, and generally dead spiritually, was swept away in those parts almost completely by a religion, Mohammedanism, much inferior in moral and spiritual background, but able to give its followers the strength even to die for their faith.

And just as the Roman empire never rose again once it had been "liquidated", so Christianity never really rose again in those regions in which Mohammedanism had taken its place. It was only when in the west the terrible danger had aroused a *military* valor sufficient to check the further spread of Mohammedanism (battle of Poitiers, in 732) that Christianity reasserted itself, and finally, after the crusades, proceeded to develop that splendid medieval civilization whose art, architecture, chivalry, and guild system still so profoundly impress us.

With these great historical experiences to guide us, I do not believe it is difficult to interpret more modern events.

Man, it would seem, rises above the animals by three characteristics: His curiosity, which grows into science; his ability to mold his environment, which finds its most impressive expression in engineering; and finally his sense of allegiance to "higher" powers, which blossoms into religion. It has already been indicated that the first two characteristics do not seem able to save him, if he is lacking in the third. It is a melancholy thing for engineers and scientists to contemplate that such giants of their professions as Euclid, Ptolemy, Hero, Alexandrinus, and Archimedes lived during the imperial era of the Greco-Roman world, and were no more able to help it escape its doom than were Socrates, Plato and Aristotle. Nothing seems to be able to save men from decline and destruction when their sense of higher loyalties vanishes. In this respect man differs fundamentally from ants and bees whose engineering structures and social arrangements now have kept them going for some three hundred million years.

Some sociologists have seen the value of religion merely in its ability to promote the submission of the individual to the interests of the social group and hence strengthen the latter and secure its survival. This may be true of fully established religious systems. But it is certainly anything else than true in the early beginnings of religions, and it is certainly not true in the case of individuals with very intense religious beliefs. The great heroes of religions, particularly their founders, set their allegiance to the deity far above their allegiance to their social group. Not rarely have they been put to death, or ostracized, as disruptive elements. If in time their faith gives rise to a new and vigorous social life, or to the founding of whole new societies, as did the faith of the Puritan settlers of this country, that would seem to encourage faith in providential guidance, rather than in the immediate evolutionary value of religion.

MODERN TIMES. The modern era begins with a tremendous religious struggle. The Catholic church as an institution has become corrupt and worldly, especially at the top. A wave of new religious intensity then breaks into the world through great reformers. The religious rebellion becomes an armed one. The protestant cause finds great military leaders,—in Sweden, Gustavus Adophus; in England, Cromwell. As an offshoot of it all there is launched in America this great new nation, which now in the words of its president has become the champion of Christianity against a world of paganism.

The difficulty is that the new movement, which began as a rebellion against corrupt religious authority, gradually swings over in many influential circles into a rebellion against all religious tradition. We have the era of "enlightenment" in the eighteenth century, which for a few short years during the French revolution strikes over into an utterly irreligious "rule of reason." This thing has not run its course yet, although it is true that much new religious life came into the world through such leaders as John Wesley and William Penn, important particularly in this country. These movements were as far as general human life is concerned completely outbalanced by the overflow of the irreligious spirit into the economic field, as evidenced by the appearance in 1776 of that "Gospel of the Devil," *The Wealth of Nations* by Adam Smith. In this book the attitude was taken that self-seeking or at least self-interest was the only ever present human motivation, and that hence it constituted the only dependable foundation on which to base human life. The attempt was made to demonstrate that, granted only free competition, natural self-seeking and self-interest would without any moral supervision whatever result in the greatest possible economic welfare for all members of society. This gospel was of course accepted with joy by profit-hungry business, which, under the medieval religiously sanctioned guild system had had to bend to the Christian doctrine that avarice and lust for gain were deadly sin, and that nobody was entitled to greater emoluments than decent living in accordance with one's function in society requires; and which later on under the so-called mercantilistic system had had to submit to regulation by the state whose interest was in filling its own treasure chest.

Professor Norman's article will be concluded in the next issue of The American Engineer.

Submitted as:

ITEMS OF GENERAL INTEREST

N. S. P. E. ANNUAL MEETING
INDIANAPOLIS, INDIANA — OCTOBER 31st
SOME NOTES THEREON

State Societies to Receive Proceedings

The 1942 Annual Convention of the National Society of Professional Engineers scheduled a year ago for the entire week of October 26th and carried out in substance on October 31st, was by virtue of circumstances reduced to compliance with the basic requirements of the Society Constitution. A meeting of the Board of Directors, an open assembly, a noonday luncheon and a dinner session, the latter two participated in by the Indiana Society of Professional Engineers and the Indiana Council of Engineers, were crowded into one day.

Despite the difficulties of travel and the demands of war, the following states were represented at the meeting: Arkansas, District of Columbia, Illinois, Indiana, Maryland, Missouri, New Jersey, New York, Ohio, Oklahoma, Pennsylvania and Texas.

The opening session consisted of a meeting of the Officers and Directors which took place at 9:00 A.M. and was continued until 4:00 P.M. (when an open session was declared) with an intermission of one and one-half hours for a luncheon gathering presided over by Captain Ben H. Petty, President of the Indiana Section of the A.S.C.E. and addressed by Dean E. A. Holbrook, President of N.S.P.E.

In calling the business meeting to order, the President recited the activities of the Society since the Spring Convention in Atlantic City. He stated that more than half of the recent civil engineering graduates are already in the armed forces or in public service and that few of this year's class would enter private employment. This increases the problems of the profession in that more and more emphasis must be placed upon efforts to protect the rights and opportunities of engineers in public service. A special problem has already arisen in the case of the civilian engineer attached to the Navy Department. This matter was discussed in the last issue of the American Engineer. Only through concerted endeavor can the profession cope with the demands of, and the pressure by, organized groups in behalf of special interests. To quote from President Holbrook, "If I go to Washington as an individual I do not get very far—If I go to Washington as a Dean of an Engineering School, I get a little farther—If I go as President of the National Society of Professional Engineers, I get a hearing—I get *Attention.*" Later action by the meeting empowered the President to meet with the Secretary of the Navy and present to him directly the problems and recommendations of the Society in the matter of Engineering personnel associated with the Navy.

In presenting his report, the Executive Secretary commented upon the confusion incident to the matter of Commissions in the Armed Forces. The Society has had so many inquiries concerning the use of Engineers by the Army that a special statement has been prepared for publication. *Note*—The recent abolishment of the Army Specialist Corps has made this report unsuited for reproduction).

The Legislative Committee advised that there has been little registration legislation during the past year. In Pennsylvania the courts have on two occasions upset the rulings of the State Registration Board. Proposals for a Registration Act in the District of Columbia (the Act is presented elsewhere in this issue) have been prepared and are ready for presentation.

The report of the Membership Committee disclosed that the total enrollment of the Society was in excess of 9300 with an active membership of slightly over 6200. On the recommendation of the Secretary, the Charter of the Tennessee Society was temporarily suspended because of a wide dispersion of officers and active members in war service. Members were to become, for the time being, members at large along with new enrollments from Georgia.

A recommendation from the Professional Relations Committee —to the effect that a Special Nationwide Society Committee be appointed to make a study of Engineers salaries in public service and that a Sub-Committee in each State be appointed to collaborate in securing data for, and making recommendations to, this Committee—was approved after some discussion as to the propriety of the present moment for such endeavor.

One of the most interesting reports of the meeting was that presented by the Professional Relations Committee on the subject of a Professional Oath. The Committee was unable to make a choice from several submissions (elsewhere in this issue will be found the various submissions) and the matter was referred for further consideration and search. A proposal relevant to an expanded Code of Ethics adopted by the Ohio Society was also presented by the Committee on Professional Relations. The said expanded Code is printed under News.

A proposal to bond Land Surveyors, discussed at length in the report of a Special Committee headed by Engineer Charles Burke, provoked much difference of opinion. The Committee presented three resolutions which were acted upon as follows:

(1.) That the National Society of Professional Engineers is opposed to Professional Society endorsement of the work or product of any private agency and recommends similar action by several State Societies and Chapters . . . Approved.

(2.) That the National Society of Professional Engineers is opposed to any policy of insurance for opinions or works of Engineers or Surveyors, but does not oppose individual insurance against liability and civil action . . . Referred back to the Committee for clarification.

(3.) That the National Society of Professional Engineers is opposed to the establishment or recognition of any private agency as an authority to pass on the qualification of professional engineers or surveyors who have been licensed by governmental authority.

A complete account of the subject, as presented at the meeting cannot be printed here. Further information may be secured by addressing Society headquarters in Washington.

In reporting on The American Engineer, both the Editor and Business Manager Zurmuhlen, recited the problems of producing a satisfactory publication in the face of war conditions and appealed for tolerance and assistance in overcoming a dearth of material and essential advertising.

Treasurer Simpson, Chairman of a Special Committee on the formation of Military Chapters, advised that preliminary investigations had been made, but that conferences with high military authorities indicated a wish to delay action for a short time.

The question of the 1942 and 1943 budgets disclosed that the number of members in the armed forces had reached such proportions that, despite new membership gains, the income of the Society would be curtailed as a result of dues remitted in the case of military members. After discussion indicating almost

unanimous opinion in favor of increased dues to carry the boys in the Service, the Committee on Constitution and By-Laws was instructed to proceed at once to a consideration of appropriate dues. When one realizes that the dues of N.S.P.E. are insignificant beside those of other National Societies, the difficulties under which the National Society works are more readily understood.

A Nominating Committee was chosen for the presentation of Nominations for the Officers of 1944. Following is its personnel:

John C. Riedel, New York—Chairman

John D. Miller, Massachusetts

John Kennedy, Ohio

Ralph Simpson, Indiana

A. Van Praag, Illinois

During the coming year, these men will receive recommendations from State Societies and Members.

Pittsburgh, Pennsylvania, December 12, 1942, was selected as the site and time of the next meeting of the Board of Directors.

NOMINATIONS FOR 1943

Designees for Officers of N. S. P. E.

At the recent Annual Meeting in Indianapolis the Nominating Committee, elected at the meeting held in Atlantic City last Spring, presented its recommendations for the year 1943.

As an evidence of the deliberations and the factors which enter into the decisions of such an important Committee, the complete report is herewith presented:

"In accordance with Article V of the Constitution of the Society, this Committee is charged with the duty of bringing in a slate of nominees for the following posts: A President; 4 Vice-Presidents, one chosen from each of the major areas of the United States; and a Treasurer.

"In undertaking this work, the Committee sent a letter to each member state society, inviting them to make suggestions with respect to possible candidates for nomination to these offices. From the names of the candidates presented, the Committee has unanimously selected the following slate of candidates:

FOR PRESIDENT—W. L. SIMPSON, Washington, D. C.
H. E. NOLD, Ohio

FOR VICE-PRESIDENT—F. H. ZURMUHLEN, New York
R. COLTHARP, Texas, and
JAMES W. CAREY, Washington

FOR TREASURER—LEO H. CLEARY, Washington, D. C.

"Since Article V of our Constitution requires that one Vice-President shall be chosen from each of the four major areas of the United States, the Committee feels that, in the selection that they have made, this clause in the Constitution is fully complied with, since one of these nominees comes from the East, one from the North, one from the South and one from the West, which, geographically, we consider a good distribution.

"Article VII requires that the Nominating Committee must secure the ratification of each nominee from the State Executive Board of the state society of which the nominee is a member. Ratifications from the various state societies involved have been received so that, in every respect, these nominations comply with the requirements of our Constitution.

"The Committee has also given consideration to the possibility of nominating more than one candidate for each of the various offices, with the thought in mind that it would help stimulate interest in the elections for these offices.

"We finally gave up the idea because, at this time, the United States Government has demanded the services of so many of our engineers that it becomes difficult, within the time allotted to this Committee, to secure a sufficient number of candidates who are qualified, willing and have the time available to give to the duties of these positions. We feel, however, that this matter should receive serious consideration. We therefore recommend its consideration by future nominating committees. In the case of nominations for Vice-President, it will of course be necessary, in order to comply with the Constitution, to so arrange the ballots, where the names of numerous candidates are offered for Vice-President, to see that only one candidate can be elected from each of the major sections of the United States."

Respectfully submitted,
William C. Kammerer
J. J. Paine
C. W. S. Sammelman
Charles W. Burke
(signed) Carl L. Svensen
Chairman, Nominating Committee

SPECIALIST CORPS ABOLISHED

To Be Absorbed By Army

In accordance with a recent edict by Secretary of War Stimson, the Army Specialist Corps, which promised service for many engineers who could not meet the rigorous requirements of age and physical qualification demanded for active combat duty, has been disbanded as a separate unit.

This Corps, which never did get actually to the point of functioning, was distasteful to the Army Hierarchy and the latter refused to give active cooperation. Some 200,000 applicants had been classified and indexed at the time of consolidation. Few of these can hope for service if latest policies continue. Only a small number between 35 and 60 years of age will be called from civil life and these will be given military training. No commissions will be given to civilians unless the individual has needed training and experience beyond that provided for by officers schools.

It is to be regretted that the Army does not see fit to utilize the scientific knowledge, the highly developed skill. the background of experience and the administrative qualifications of mature engineers in the same manner that it does the talents of members of the medical profession. An engineer of 50 may not be a good line officer, but neither is a physician of 50. The former is equally as valuable to the conduct of war and the maintenance of health as his medical colleague. He makes no professions as a fighting man, but he is as ready and willing to offer himself to the rigors and hazards of war as is his younger brethren, and as fit as comparable members of the medical calling. Modern war is engineering and there is no substitute for its techniques and training.

THE WORLD WE WOULD BUILD

SPECIFICATIONS THEREFOR

by

SAMUEL S. WYER

"The dream of the ages—plenty, freedom, adventure, reasonable security and adequate leisure—is within our reach. This engineering and social analysis shows what we must do with what we have, in order to get what we want.

"Science in less than a century, by harnessing the energy in our natural resources, coupled with mass production methods, has greatly increased production of goods. What is equally important, intelligent direction could still further increase production possibilities. Thus we could raise our living standards still higher. However, we must recognize the futility of raising living standards unless at the same time we raise the standards of education, wisdom, foresight, judgment and morals.

That is, create the sound motives to use the increased power wisely for human welfare purposes."

In a recent publication from which the above is quoted Engineer Samuel S. Wyer of 1325 Cambridge Boulevard, Columbus, Ohio, sets forth some proposals which indicate that the author has given intense thought to the most profound and comprehensive subject that has ever beset the human race. Myriads have written and dissertated upon the same, but few have ever set forth so much in such short space.

Whether one agrees or disagrees with all of the writer's views and methods he will find these "Proposed Specifications for The World We Would Live In" a truly remarkable work and an encyclopedic approach to an objective to which all mankind profusedly subscribes but denies in practice.

Unlike most writers, the author distinctly states that his material is not copyrighted and he invites others to use the same. Accepting Mr. Wyer's offer The American Engineer produces herewith the rear cover of his valuable publication. Would that it were possible to reproduce more of this book.

WHITHER?

WHICH WILL BE THE WAY OUT OF TODAY'S ECONOMIC MUDDLE ?

1-ANARCHISM
100% INDIVIDUALISM AND ABOLITION OF ALL RESTRAINT AND LAW.
Assumes saintly innocent citizens

2-SOCIALISM
COMMON OWNERSHIP OF MEANS OF PRODUCTION AND EXCHANGE.
Assumes that men will work from a sense of altruism.
POSSIBLE ONLY WHEN ALL FOLLOW PHILOSOPHY OF LIVING OF JESUS

3-COMMUNISM
ECONOMIC PLANNING.
STATE OWNERSHIP OF MEANS OF PRODUCTION AND EXCHANGE.
TAKES PRODUCT OF LABOR FROM WORKER AND THEN RATIONS HIS LIVELIHOOD TO HIM.
DICTATORSHIP OF PARTY GROUP.
Assumes gratis labor for the good of society- contributed without thought of reward.

4-FASCISM
ECONOMIC PLANNING BY DICTATORSHIP OF AN INDIVIDUAL.
IGNORES CONSENT OF GOVERNED.
AT THE EXPENSE OF POLITICAL FREEDOM MAKES FOR ECONOMIC EFFICIENCY.
Assumes that people are incapable of self-government.
REST ON COMPULSION SACRIFICE INDIVIDUAL FOR GROUP NO PROTECTION AGAINST TYRANNY CANNOT PERMIT DISSENTERS OR CRITICS

5-CAPITALISM
PRIVATE OWNERSHIP WITH INADEQUATE SOCIAL RESPONSIBILITY. ORDERLY POLITICAL BUT DISORDERLY ECONOMIC RELATIONSHIPS.
Overstressed profit, individualism rights, competition and production. Has failed to secure fair distribution and social justice for masses.

6-ORDERLY SOCIETY
PRIVATE OWNERSHIP ESTABLISHED AND MAINTAINED FOR HUMAN WELFARE PURPOSES.
MEASURED BY "HUMAN WELFARE," TAKE THE BEST OF EACH OF THE ABOVE AND CREATE ORDERLY ECONOMIC RELATIONSHIPS BY PLANNING.
Basis-proven experience, creative attitude and constitutional code for capital management, labor and public, recognizing that where law ends tyranny begins. Goal- economic security and comfort for the masses rather than economic power and luxury for a favored few.
BLENDING OF INITIATIVE, ONWARD AND LIBERTY. CAN FUNCTION WITHOUT LOCK STEP THINKING CAN PERMIT DISSENTERS AND CRITICS. REST ON CONSTITUTIONAL GUARANTEES.

A CODE OF ETHICS

APPROVED AND APPLIED BY OHIO

Considered by N. S. P. E.

Among the interesting reports presented at the recent Annual Meeting of N.S.P.E. in Indianapolis, was that on the subject of Ethics by the Professional Relations Committee which had been instructed to review the Expanded Code of Ethics of the Ohio Society as recently amended. This Code merits reproduction and comment from other State Societies and members generally:

EXPANDED CODE OF ETHICS

Foreword

The Expanded Code of Ethics was developed upon the following basic conclusions:

(1) The Code of Ethics contained in the application for license, and reprinted at the end of this booklet, is a sound expression of the general principles of ethical, professional conduct.

(2) The Code has the weight of authority, since it was subscribed to by every engineer and surveyor in the State as a definite provision in his application for license to practice.

(3) Any other study of Ethics should recognize the superior authority of the existing Code and should take the form of interpretations and applications of the basic principles contained in the existing Code.

(4) In addition to interpretations and applications of the principles of the existing Code, certain rules, based upon generally recognized principles of professional conduct, should also be included.

NOTE: For brevity, the word "ENGINEER" herein is used in an all-embracing meaning, to include all engineers and surveyors irrespective of specialization or condition of employment, unless otherwise specified.

Principle "A"

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any professional engineer or surveyor to act for his client in professional matters otherwise than as a faithful agent or trustee, or to accept any remuneration other than his stated charges for services rendered to his client."

Application No. 1

It is unethical for an employed engineer to solicit or accept other employment to the detriment of his regular work or the interests of his employer.

Application No. 2

An engineer in independent or private practice may be employed by more than one party when the interests of the several parties do not conflict.

Application No. 3

An engineer should not undertake work which he believes will not be successful, without first advising his client of his opinion.

Application No. 4

An engineer who is called upon to decide on the use of any invention, apparatus, material, or anything in which he has a financial interest, should make his status in the matter clearly understood to his client or employer.

Application No. 5

It is unprofessional for an engineer to accept, directly or indirectly, remuneration or material benefits for any specific work, from any source other than his client or employer.

Principle "B"

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any professional engineer or surveyor to attempt to injure falsely or maliciously, directly or indirectly, the professional reputation, prospects, or business of another engineer or surveyor."

Application No. 1

Criticism of a fellow engineer should be avoided, but if necessary for reasons of public safety or welfare, should be addressed only to responsible authorities.

Application No. 2

An engineer who is in sales or industrial employ is entitled to institute engineering comparisons with the products offered by a competitor, but he should avoid aspersions upon the character, standing, or ability of such competitor.

Principle "C"

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any professional engineer or surveyor to attempt to supplant another engineer or surveyor after definite steps have been taken towards his employment."

Application No. 1

It is unprofessional to accept an appointment with a client or employer to replace another engineer while knowing that a just claim for compensation or damages of the previous engineer remains unpaid, unless the previous engineer neglects to press his claim legally within a reasonable period.

Principle "D"

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any professional engineer or surveyor to compete with another engineer for employment by the use of unethical practices."

Application No. 1

An engineer should not undertake work at a price that will not permit of satisfactory professional performance.

Application No. 2

It is unethical for an engineer knowingly to compete with another engineer for employment on the basis of professional charges. Any offer of professional service should be on the basis of his regular fees.

Application No. 3

It is unethical for an engineer to use plans and specifications prepared by manufacturers, sales agencies, supply houses, or patentees except to the extent that such plans and specifications pertain only to the product of said manufacturer, sales agency, supply house, or patentee.

Application No. 4

It is unethical for an engineer to use the advantages of a salaried position (public or private) to compete with other engineers.

Application No. 5

It is unethical for an engineer to use the advantages of instruments and office facilities (public or private) to compete with other engineers without payment for such instruments and facilities at current rates.

Application No. 6

It is unethical for an engineer to offer or to pay, either directly or indirectly, any commission in order to secure work, exclusive of securing salaried position.

Principle "E"

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any professional engineer or surveyor to review the work of another engineer or surveyor for the same client, except with the knowledge and consent of such engineer or surveyor, or unless the connection of such engineer or surveyor with the work has been terminated."

Application No. 1

Technical arguments and criticisms of engineering subjects should seldom be conducted in the public press, but, when necessary, before engineering societies or in technical publications.

Application No. 2

When the work of an engineer is reviewed at the instance of his client, such engineer should be given opportunity to explain his work.

This statement of principles does not prevent investigation without notification when the investigation is prompted by questions of safety or honesty, nor does it prevent investigation for any legitimately interested party other than the client.

Principle "F"

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any professional engineer or surveyor to advertise in self-laudatory language, or in any manner derogatory to the dignity of the profession."

Application No. 1

Professional work should come to the engineer on the basis of experience and reputation. Solicitation by lobbying, criticism of competitors, or self-laudation is degrading to the profession and is unethical.

Application No. 2

Advertising matter in the form of calendars, rulers, blotters, paper knives and similar gifts, irrespective of value, is undignified and is condemned.

Application No. 3

Advertising in lay publications should be discouraged. Advertising in professional or technical journals is permissible. All advertising should be limited to dignified professional cards which list the name and address of the engineer and the type of work he renders. Listings in directories of general circulation, such as city and telephone directories under special headings indicating the type of professional services offered, are proper, but such listings should not be in bold faced type or displayed.

General Applications

The following are general applications which do not fall directly under any particular principle or section of the Code of Ethics of the O.S.P.E. but are none the less principles of proper conduct.

General Application No. 1

When any question of design or construction involves the public safety, the engineer should insist on the correct engineering procedure.

General Application No. 2

It is unprofessional for an engineer to undertake professional work for which he is not qualified.

General Application No. 3

Engineers, including those in public office, should be free to call in special consulting service to suppplement their own experience and that of their organizations on problems outside of their usual field.

General Application No. 4

In contracts to which his client, or employer, and a contractor are parties, the engineer, as interpreter and administrator of the contract, must be impartial and fair to both parties.

General Application No. 5

The plans and specifications of an engineer should be definite and specific. They should define the exact requirements clearly and should admit of no double meaning.

General Application No. 6

An engineer should discourage invitation of bids from any contractor to whom consideration would not be given in awarding the contract.

General Application No. 7

An engineer should not use association with a non-engineer, a corporation or partnership as a cloak for unethical acts, but must accept responsibility for any such acts to the extent of his authority.

General Application No. 8

It is unethical for any engineer to accept remuneration either from an employee or employment agency for giving employment.

General Application No. 9

It is unethical for an Engineer to give public endorsement to any commercial product or enterprise or allow his name to be used in advertising such product.

SWITZERLAND COMMUNICATES

International Association Sends Publication Prepared by Secretariat General

It is both interesting and significant to note that, despite the casualties of war among the institutions of learning and professional societies on the continent of Europe, the torch of knowledge and scientific research still burns brightly in Switzerland. Surrounded by larger and more powerful nations on all sides this Alpine Country has remained aloof from the quarrels of her neighbors for many moons, notwithstanding the fact that war has on numerous occasions raged all about her.

THE AMERICAN ENGINEER acknowledges with appreciation the receipt of the sixth volume of the publications of the International Association for Bridge and Structural Engineering. Printed in French, German and English, this volume comprises 306 pages and contains 16 original presentations dealing with steel and reinforced concrete. It is believed that scientists as well as engineers may be interested in the published material.

The volume contains a preface which, in the light of present world conflict, is worth reproducing here:

"Despite the unfavourable conditions and the continuance of the war, the Secretariat General of the I.A.B.S.E. has resolved to publish the 6th volume of the I.A.B.S.E. 'Publica-

tions', because these publications constitute the only means of providing some continuity for the scientific work of the Association. The editors are very happy that a number of letters have been received from among our members in which expression is given to the desire that our activities should be continued. Owing to prevailing circumstances it has not been possible, since 1939, to arrange meetings of the Executive or the Permanent Committees, and it was thus impossible to elect a new Executive Committee when the term of office of the present one was completed in 1941. The leaders of the I.A.B.S.E. in Zurich have all the same undertaken the task of continuing the activities of the Association, so that when normal conditions return it will be possible to resume work on a wider basis. They believe that in this manner they are acting in the sense of the Association's aims and that the great majority of members will approve this course.

"The 6th volume published contained 4 papers in English, 2 in French and 10 in German—most of these have been ready since 1939. A number of these papers had been prepared for the Warsaw Congress in 1940, which had to be postponed.

"For the contents of the papers the authors alone are responsible. As hitherto, the titles, summaries and texts of illustrations have been printed in three languages. The Secretariat General would be glad to receive any suggestions for the improvement of the translations. It was very difficult and in certain cases even impossible for the Secretariat General to keep in contact with the authors, a fact that has led not only to delays but also to the possibility of errors in the matter of the corrections.

"If conditions permit the Secretariat General in Zurich intends publishing the 7th volume of the 'Publications' in 1943. The editors would be grateful if contributions were announced or sent in as soon as possible. Only such original treatises on the theory and practice of bridge building and constructional engineering as constitute valuable contributions to the scientific technique will be accepted. Papers previously published in periodicals are on principle not eligible for acceptance. Authors normally receive 100 specially printed and covered copies of their papers free of charge. The Secretaries General responsible for the publication of the 6th volume herewith express their thanks to the authors for their collaboration and hope that it will also be possible to publish an extensive and valuable collection of contributions in future volumes."

Zurich, 1942

The Secretaries General:

Dr. Ing. M. RITTER, Professor at the Swiss Federal Institute of Technology, Zurich

Dr. sc. techn. F. STUSSI, Professor at the Swiss Federal Institute of Technology, Zurich

Manhattan College Convocation

MARKED BY HONORS

Bestowed On Three Engineering Leaders

N. S. P. E. Vice President-Elect F. H. Zurmuhlen Made Doctor of Engineering

A convocation commemorating the fiftieth anniversary of the founding of its School of Engineering was held in New York on October 14th by Manhattan College. Despite the restraints of war, the occasion, which because of previous decisions could not well be postponed, was a colorful one and was attended by representatives of education and government from many sections of the country.

Commenting on the anniversary the President of the College, Rev. Brother A. Victor, F.S.C., Ph.D., LL., paid tribute to the Engineer in the following terms:

"We rejoice today in the golden jubilee of Manhattan's School of Engineering. It has done faithful service to an ancient and honorable profession which has contributed so greatly to culture and civilization. But its greatest glory is that it has been faithful in the formation of true and finished men of character, men whose lives are marked by 'constancy in following the eternal principles of justice.' With high courage and with God's help, it rededicates itself to the continued pursuit of this sublime task."

* * * *

"The golden jubilee of Manhattan's School of Engineering finds the school covered with well-deserved honors. Through its Society of Engineers and its Pi Sigma Chi, the Engineering honor society, the Engineering School has been the admiration of the rest of the College, and has offered an example of loyalty hard to surpass and difficult to emulate."

* * * *

"Manhattan's School of Engineering is ready for the tasks that lie ahead. Solidly founded and well consolidated, the School, under God, will continue to serve America and to train men to conquer the wilderness, to exploit nature's resources, and to bring a mathematical logic to the solution of tomorrow's problems."

Three prominent engineers were recognized for their contributions to the profession. The citations stated: of **Emil H. Praeger,** "He is presently directing the Department of Design, Bureau of Yards and Docks . . . Besides being a 'doer' in his profession, he is widely known for his lectures and writings on engineering subjects"; of **Roy C. Cummings,** "His broad and long technical experiences have not only deepened and expanded his personal knowledge of engineering, but for years have also been charging the extensive training and schooling which General Electric conducts for its personnel, for he has been the generator of such programs"; of **Frederick H. Zurmuhlen,** "His accomplishments in his relatively short professional career are genuine tributes to his recognized skill and his vigorous initiative . . . Withal, he is willing to be spent in his constant and devoted interest in the development and progress of Manhattan's Engineering School."

THE WORLD OF BARRIERS

The Case For and Against Continues

REBUTTAL BY AUTHOR

Engineer Jacob Mark

In the September-October issue of American Engineer, Engineer Preston has some interesting comments on my article "A World of Barriers" which appeared in the July-August number of the magazine. He has found an error in the New Zealand population figure (typographical, I assure you) which proves my barrier theory more conclusively. The barriers raised there have helped to keep the population down to only 1½ million in a territory two-thirds as large as Japan which supports a population, 1940 estimated census, of seventy-two millions. He traces a parellel between United States colonial settlement in its first 150 years and Australia's past 150 years. Colonial settlement took place in a handicraft age, sailing vessels and non-steam, non-electric transport and communications. No fair comparison can be made between 1642 and 1792 and 1792 to 1942 periods in affording opportunity for migration and settlement.

Mr. Preston states correctly that Australia was an exporting nation before the war, producing more food than it needed. But because of its small population its economy has been knocked out of balance much more than if it had numerous people and a diversified economy. It is suffering from lack of manpower due to small population—else what is the United States Army and Navy doing there? And how are our forces supplied with ammunition and other needed commodities? By our much needed shipping, not by the New Zealanders and Australians, who are more than gallant, but who just haven't the manpower to extract the resources of their land, and despite their small populations, they have had great depressions.

I tried in my brief article to condense information which should require many chapters. The core of the idea is that man-made

barriers designed to favor special groups to keep advantages, have resulted in holding populations down and in keeping people out. This point, Mr. Preston has entirely missed. He cites Canada as an example of a country which has a population as large as can be expected in view of its "age". Canada proves my point better than any other location. Much of Canada is in the Temperate Zone. Niagara in Canada has same climate and stream as Niagara in United States. The Canadian side has relatively few people. The United States side is teeming with people and activity. Canada is as old as the United States. Witness Montgomery's expedition in Revolutionary days and the battles for control between Montcalm and Wolfe preceding the Revolution. Canada has a low population because the land with small exceptions was parcelled out by Royal decrees to Hudson Bay Company,—to Canadian Pacific and to other grantees and hierarchies. Vast spaces were thereby closed to free movement and settlement. That's a man-made job and has nothing to do with the "age" of the country—no more than the "age" of Alaska has to do with its emptiness. This vast territory is empty because of policies of our Department of Interior which traditionally discourages settlement and thereby keeps the place a paradise for large fisheries and mining interests. There are states in our own Republic where vast domains are controlled privately and where man-made barriers have kept the population sparse favoring cattle and timber industries.

Now as to New Zealand and other Southwest possessions. Need I retell the tragic tale of the past few months when our outnumbered forces have taken the worst military beating in our history? Why? Because of the emptiness of the vast spaces. Empty because of restrictions and barriers. I shall set down a few random notes on New Zealand taken from Britannica 11th Edition. Similar facts may be cited of other good empty spaces. As early as 1879 New Zealand set up tariff walls. When the Kauri gum industry began to develop and immigrants came from the Adriatic to exploit this industry, restrictive laws were passed to keep them out. By 1907 there were still many estates of 5,000 acres or over. The natural pastures of the country were quickly parcelled out in huge pastoral crown leases when the country was still young. In 1892 a new form of land tenure under which large areas of crown lands were leased for 999 years, with no right to purchase, was inaugurated. In 1896 an immigrant exclusion act was passed. On objection by England, to the exclusion act, there was then passed the "Reading Test Act" which is a successful trick to keep out immigrants.

Nature abhors a vacuum. The empty spaces kept so by stupid, malevolent and selfish barriers will be filled by our people if we show our right to live in exercising moral principles and physical vigor or by other people without moral scruples or principles but with more vigor and energy than we have. New Zealand has gold, silver, coal, also copper, iron, lead, zinc, antimony, and chrome. Oil was also found long ago near New Plymouth. That country can and should support millions of people if the man-made fences are let down.

Mr. Preston makes a statement that Canada is vastly more advanced industrially than United States and far better able to support its own defense. That will need a lot of statistical bolstering when we know Canada's vastness, its long coast line, its tiny navy, its little army, and its too small population with Canadian French divisibility. The sententious statement that "no small part of New York City's population must be regarded as parasitic upon the body of the United States," is as much without foundation as the actions of many of our good people who believe they are wiser than Providence and who proceed to cut the universe to their own rigid pattern.

In conclusion, if I may sum up in an over-simplified statement the phenomenon of the present world revolution. The degenerate Hitler is trying to enslave people, tie them down, fence them in, and control their movements and lives and destroy them at will. His opponents must be for free movement, settlement, economic self-determination—a world free of artificial barriers. They will be for that or perish.

COMMENTS AND SUGGESTIONS
by
Engineer W. H. Rabe

To the Editor:

You invited comments on Jacob Mark's "A World of Barriers" in the July-August number of The American Engineer. I think it is a very interesting article and believe you deserve commendation particularly for publishing statements critical of the engineer-organization movement itself.

Nearly everybody enjoys debate and a periodical can be made more interesting by printing a variety of ideas. Besides, if an engineer's social and political thinking is to be stimulated, there would seem to be no better forum for such a purpose than his professional magazine.

If the barriers which Mr. Mark deplored are removed, it will have to be a gradual process in the case of those which have stood a long time, and their dissolution will in the main have to be brought about through the efforts and behavior of the several groups against whom they seem to be erected. I believe this to be true because the under-dog must invariably go more than half-way in getting out of the dog-house, regardless of the merits of the case, and because in many cases those on the wrong side of the fence themselves originally began the erection of the barrier, which later was built higher by those now dominant. The barriers' only chance of removal will be a gradual disintegration from lack of repair as the dominant group over several generations or centuries loses its interest in maintaining the barrier.

Your editorial "If Peace Comes" was very good. You are right in advocating that we should get away from the practice of trying to maintain various man-made policies in a state of static. This should apply to economic practices, national boundaries and everything that man has devised. The result of an attempt at a static anchorage is war, either internal or international. Engineers and all others should be encouraged to think clearly and objectively on all questions. There has been too much tendency to call a man a communist for permitting his thoughts to wander off a well-worn conventional path.

However, in spite of the desirability of broadening the thinking of engineers and improving their versatility, it seems to me that the N.S.P.E. would perform a wise service in encouraging practicing engineers to improve themselves as engineers. An engineer particularly one of extrovert temperament, could easily become interested in so many broadening activities that he might have to think of himself as a *former* engineer. He should above all else try to become more learned, ingenious, thorough and valuable as an engineer. We often talk about emulating certain professional practices of medical men, but as any one of us needs medical attention he seeks a doctor who is clever in his work and who may not be any good at anything but doctoring.

It is rather easy for a practicing engineer to go to seed unless there is a constant challenge to his engineering wits and knowledge. The N.S.P.E. might do more good in encouraging its members to keep on their toes technically than to concern itself so much about improvements to undergraduate education. In a number of other professional fields there seems to be more active interest in adult education than in the field of professional engineering. Besides providing this encouragement to its members, the Society might become more attractive to prospective members of the type which is strongly inclined technically. I am not advocating the branching-out into fields of education and dissemination of technical information already covered by other organizations and institutions but merely more emphasis in articles and speeches on the engineer's main line.

It seems to me that The American Engineer has improved considerably since several years ago. You have had an ever increasing number of thought-provoking articles.

Fragments from

STATE & SOCIETY ACTIVITIES

CALIFORNIA

Issues 1942-1943 Roster

The New Roster of Registered Civil Engineers and Land Surveyors issued by the Department of Professional and Vocational Standards lists the following table of contents:

Civil Engineers Section:
- Law
- Rules
- Roster—Civil Engineers
  - Alphabetical List
  - Certificates expired (subject to reinstatement)
  - Recapitulation
  - Structural engineers
  - Structural engineers (expired)
  - Geographical list
  - Numerical list

Land Surveyors Section:
- Law
- Rules
- Alphabetical list
- Licenses expired (subject to reinstatement)
- Recapitulation
- Geographical list
- Numerical list

The information is presented in an attractive and readable manner and contains all that is necessary in a Directory of this kind. Copies of the publication may be obtained upon the payment of $1.00 by addressing the Department.

For information purposes, the members of the State Board of Registration are noted below. Attention is directed to the fact that the Board has two offices.

STATE BOARD OF REGISTRATION FOR CIVIL ENGINEERS

Asa G. Proctor, President
Bank of America Building
Woodland

Henry D. Dewell, Vice-President
604 Mission Street
San Francisco

Mark M. Falk
251 Kearny Street
San Francisco

H. M. Jones Secretary
907 State Building
Los Angeles

Pecos H. Calahan, Asst. Sec.
529 Business & Professions Bldg.
Sacramento

Principal Office:
529 Business & Professions Bldg.
Sacramento

Branch Office:
907 State Building
Los Angeles

INDIANA

State Societies Host to N.S.P.E.

The Indiana Society of Professional Engineers and the Indiana Engineering Council collaborated in playing host to the National Society of Professional Engineers at its streamlined Annual Meeting held in Indianapolis on October 31st. The several sessions of the State groups and the joint meetings were presided over by Vice President Ralph Simpson of the Indiana Society of Professional Engineers, Capt. Ben H. Petty, President of the Indaina Section of A.S.C.E., Secretary F. A. Henning of the Indiana Council, Vice President John C. Siegesmund of the Indiana Society and President Clyde A. Walb of the Indiana Society who also addressed the All Engineers Dinner held in the Chateau Room of the Claypool Hotel.

Engineers For Civilian Defense

The Indiana Defense Council has organized an Engineering Advisory Committee in each county. These Committees will be called upon for technical assistance by County Civilian Defense Director. All engineering organizations have been urged to aid in securing volunteer personnel for these committees. All Indiana engineers should accept this opportunity for service.

Concern Over Merit System

The apprehension caused by press reports of last summer to the effect that under the guise of emergency legislation an effort would be made to abolish the merit system in public office, continues unabated. The Indiana Society is striving to awaken public and professional interest to prevent loss of the ground gained after many years of effort. To allow the Highway Department to fall back into political control would be a blow to the public welfare as well as to the Engineer.

LOUISIANA

Board Licenses Four

From Assistant Secretary W. Fleming Scofield of the Louisiana State Board of Engineering Examiners comes the information that at its November meeting the Board approved licenses to the following:

Mr. David Geier
New Orleans, Louisiana
Civil Engineer

Mr. Charles Richard Rostron
New Orleans, Louisiana
Civil Engineer

Mr. Kenneth Edward Britain
Houston, Texas
Surveyor

Mr. Frank Morris Richie
Houma, Louisiana
Surveyor

NEW YORK

Society Postpones Fall Meeting

After a canvass of opinion, the Board of Directors decided that in the face of the demands of War and the difficulty of travel, the Fall meeting of the State Society might well be postponed. Should necessity arise, correspondence would be utilized to transact business and gather opinions.

Federal Practice Protested

The policy of seeking professional services on a basis of competitive bidding has long been deemed prejudicial to the public welfare and inimical to professional standards. Despite condemnation, certain governmental agencies persist in this pernicious

practice. The following indicates the problem and the action taken on a recent case in New York:

NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS
COMMITTEE ON ETHICS AND PRACTICE

Progress Report—November 30, 1942

The Federal Public Housing Authority, through its regional representative, recently invited Professional Engineers to bid competitively for engineering work in Niagara County. To support the local County Chapter of the State Society, the following telegram was sent by this Committee:

October 14, 1942

A. L. Williams
709 Cedar Ave.
Niagara Falls, N. Y.

It is definitely unprofessional for engineers to bid competitively for engineering work. The authority should be so informed and should be advised to select engineers on basis of qualifications and subsequently to settle fee by mutual agreement with established standards as a guide.

D. B. Steinman

The Niagara County Chapter thereupon adopted resolutions branding the proposed competitive procedure as being in violation of the Society's Code of Ethics and requesting appropriate action by the State Society. In compliance with this request, President James F. Fairman addressed a letter to the Federal Public Housing Authority recording the attitude of the Profession relative to this unethical practice and requesting discontinuance. Copy of President Fairman's communication is appended to this report.

Respectfully submitted,
Committee on Ethics and Practice
by D. B. Steinman, Chairman

Federal Public Housing Authority
270 Broadway
New York, N. Y.

Gentlemen:

"It has come to our attention that the Federal Public Housing Authority, through one of its representatives, Mr. Arthur M. Blaine, has solicited competitive bids for the professional services of land surveyors in connection with a housing development in the City of Niagara Falls, New York.

You are probably well aware that one does not ask physicians or lawyers to bid competitively in the rendering of professional services, and no physician or lawyer of the type one would desire to have serve him would offer his services on any such basis. The same thing is true of engineers and surveyors.

In any profession worthy of the name, it is unethical for the practitioners to compete with their fellows on the basis of professional fees or other financial reward and the codes of ethics of the professional societies specifically forbid their members to seek to sell their services on the basis of competitive bidding.

This Society consists of professional engineers and land surveyors licensed by the State of New York. It is affiliated with corresponding societies in most of the other states which have similar licensing laws. All the licensing laws are based on the premise of safeguarding life, health and property of the citizens of the state by restricting the practice of professional engineering and land surveying to properly qualified persons.

Every profession, unfortunately, has a fringe of quacks, ambulance chasers and chiselers, but we are sure that the Federal Public Housing Authority would not desire to retain the services of persons of that type. In order to avoid that possibility, as well as to cooperate constructively in safeguarding life, health and property, we are sure that the Authority will be glad to discontinue the practice of soliciting competitive bids for the professional services of engineers and surveyors."

Very truly yours,
(signed) James F. Fairman
President

OHIO

President's Monthly Letter

The monthly epistles of President Kennedy always manifest the energy and activity of the author. They make interesting reading, as may be noted:

"Fellow Engineers:

"Many people throughout the world today don't know which way to turn. They are confused, worried, disheartened and discouraged. They are told they are fighting for their very existence, to preserve their way of life and all that they hold near and dear.

"A twist of the radio dials and what do they have to encourage and inspire them! Something like this—Your hair must positively have our product to restore its natural lustre. Cleanse your skin and preserve your complexion by using our one and only No tooth brush will do a complete job but this one. Use our marvelous dentifrice containing some mysterious magic ingredient to make your teeth sparkle. Our soap is the only kind to eliminate B.O. Take only genuine so and so to relieve headache. Take pills for acid stomach, pills for your liver, protect the tubes in your kidneys, smoke our cigarettes for your throat's sake, chew gum for your digestion, wash your clothes the right way, start the day by loading up with vitamins. Every famous athlete owes his success to eating our cereals or our enriched bread. Eat our hams and bacon only. They come from contented pigs that have made perfect hogs of themselves. And so it goes, on and on far into the night.

"Then the news. Did you say news! Commentators, correspondents, official releases, communiques, confidential and sensational military analysts, self styled experts of all kinds. What can be done, what can't be done, what has been done, what hasn't been done, what probably may be done, claims and counterclaims. Oh, what's the use! Turn off the dial.

"Small wonder there is indecision on every hand. The objective seems to be to keep after them, to hammer away, repetition, to break down their resistance and make them like it. Just what are we fighting to preserve? What a welcome relief to hear the son say, 'Dad, help me with some problems in circles tonight, will you?' Yes indeed, that request makes sense.

"Let's get some straight thinking started in this old world of ours. Don't you think we can use some of that orderly thinking the Engineer is noted for, based on facts and not on fancies! Well, I do."

Bulletin Items

The following are excerpts from the October Bulletin:

The 1942 Directory will contain the names of all members in good standing, and that means members whose 1942 and/or 1941 dues are paid. The Trustees have so ordered. At the October meeting it was moved, seconded, and passed that the Directory be printed in accordance with the Constitution, with special reference to Article 9 of the By-Laws which says: "A member shall be dropped from the membership rolls if dues are not remitted within twelve (12 months from the due date . . ."

It will be the fattest Directory in the history of the Ohio Society, getting on toward 1800 names now and all the others that come in while we can still insert 'em. Let's try to make it 2000 . . . On the subject of directories, that's a nice-looking new Roster of the Ohio Professional Engineers and Surveyors. Many prospects.

"Salaries of Engineers in Public Employment" by Lloyd Chacey is almost a best seller. About 2200 copies were sent out to our members, to technical societies, libraries, magazines, etc. Well, inquiries have come in from several states and even some orders at a buck a copy. The ASCE, which already had a comp copy, ordered and paid for seven more.

Bits from the Minutes. Perhaps at chapter meeting you've already heard a report on the October Trustees meeting. We're still in the black; our total assets at the end of September were $3226.22. We had 1749 members, 1245 with their 1942 dues paid and 504 still in good standing from '41. The 1942 remittances and new memberships are coming in well, and we hope our

members won't delay paying their 1942 dues even if it's not requisite to having their names in the Directory as erroneously announced.

Examinations for everybody may be a subject that is nearer than some think, for the Trustees voted to refer to our Legislative Committee the matter of changing the registration law to require exams for every applicant for a license. The Committee also is to consider an "Engineers in Training" plan whereby the young grad can take his theoretical exam before he's rusty and then, while he gets experience for the professional exam, be registered with the license board as in training and receive proper recognition from the chapters of the professional society . . . More news: Engineer Robert N. Waid is back at the old stand as chairman of our Legislative Committee.

Lack of space prevents publication of the entire Bulletin.

PENNSYLVANIA

State Society Convention

The 1943 Annual Convention of the Pennsylvania Society of Professional Engineers is scheduled for January 22nd and 23rd. All Chapters are urged to be prepared for an active and perhaps controversial two day session. The period of the statewide membership competition for the Laurie Cup has been extended to the date of the Convention.

Philadelphia Notes

On October 2nd and 3rd resolutions were passed by the Philadelphia Chapter petitioning the State Society to authorize an Affiliate Association to be composed of "Engineers in Training". This is a progressive action which will doubtless have its counterpart in other States before long.

At its November Meeting, the Chapter welcomed eleven new members and noted the application of eight engineers.

Pittsburgh Area

The Third Thursday of each month is the regular meeting date of the Pittsburgh Chapter. All engineers are invited to attend the meetings. Seven additions to the Chapter Membership were noted at the last meeting. The question of Engineers in Training presents certain problems in the minds of some members of the Pittsburgh Chapter and a full dress discussion may shortly be forthcoming.

Harrisburg Chapter

Five new members in one meeting and at least one additional prospective member was the report of the Membership Committee at a recent meeting. This is keeping pace with other Pennsylvania Chapters.

DR. F. HERBERT SNOW

The passing of Dr. F. Herbert Snow, Consulting Engineer for the City of Harrisburg, will leave an unfillable void in the ranks of the Chapter and of the profession. Dr. Snow has been termed the father of the Pennsylvania Registration Act. He was the author of the Original Law and was one of the Founders of the Pennsylvania Society of Professional Engineers.

"Dr. Snow came to Harrisburg in 1905 as chief engineer of the newly-created State Department of Health. At that time he was called upon to enforce the so-called 'purity water law' to suppress typhoid and other diseases, other acts relating to municipal sanitation and public hygiene and bring about installation of modern water supply and sewerage systems.

"His efforts in Pennsylvania reduced the death rate from typhoid 67 per cent to an almost negligible figure. While chief engineer for the Health Department he was largely responsible for the building of the city's river front intercepting sewer, drawing initial plans and specifications.

"Dr. Snow also constructed the Mont Alto, Cresson and Hamburg Hospitals for treatment of tuberculosis, was consulting engineer when the Masonic Homes were started at Elizabethtown, had charge of the engineering reclamation of Austin when it was wiped out by the bursting of a huge dam and had charge of fund expenditures by the State for the care of citizens of Gettysburg in 1913 at the fiftieth anniversary of the Civil War battle there. For this work he received a medal from the Federal Commission.

"In 1914 Dr. Snow was appointed chief engineer of the Public Service Commission, now the Public Utility Commission, and continued in that office until 1932 when he retired and became secretary of the Pennsylvania Water Works Association. He was secretary emeritus at the time of his death, and senior member of Snow-Weaver Industrial Management.

"While engineer for the State Utility Board he directed elimination of more than 1000 grade crossings at a cost of $225,000,000, was an expert on utility valuation and rate making and for a number of years was on the advisory committee of the Interstate Commerce Commission bureau of valuation.

Founded Society

"In 1908 he founded the Engineers Society of Pennsylvania here, later was president and in 1937 was elected an honorary member, a tribute given to only a few nationally prominent men by the organization.

"He was past president of the New Jersey, Philadelphia-Delaware section of the American Society of Civil Engineers, a member of the American Association of Civil Engineers, York and Scottish Rite branches of Masonry and St. Stephens Episcopal Cathedral."

TEXAS

The American Engineer is indebted to the Texas State Board of Registration, especially Secretary Carl L. Svenson, for its cooperation in the matter of furnishing the following information:

REGISTRATION BOARD ACTIVITIES

REPORT TO THE GOVERNOR

Under date of September 8th, The Board of Registration transmitted its 5th Annual Report to Governor Stevenson. The letter of presentation and the report follow.

"Hon Coke Stevenson
Governor of Texas
Austin, Texas
Sir:

Complying with Section 10 of Senate Bill No. 74, Acts Regular Session, 45th Texas Legislature, we have the honor to transmit, for The State Board of Registration for Professional Engineers, report of its transaction of the preceding year, September 1, 1941 to August 31, 1942, its Fifth Annual Report.

Respectfully submitted,
(Signed) J. E. Hudnall, Chairman
State Board of Registration
for Professional Engineers

Attest:
(Signed) Carl L. Svenson, Secretary
Board Seal"

FIFTH ANNUAL REPORT TO THE GOVERNOR FOR THE PERIOD SEPTEMBER 1, 1941—AUGUST 31, 1942

During the year the Board held nine meetings, two regular and seven called, one of the called meetings being of three days and one of four days duration. One meeting was held in Dallas, one meeting in Beaumont, all other meetings having been held in Austin.

Applications for registration to practice professional engineering in the State of Texas accepted by the Board during the year numbered 369—an increase of 101 over the preceding fiscal year—bringing the total for the life of the Board to 6216.

The Board since its last report to you has passed on 345 applications—this being an increase of 29 over the number passed on during the preceding year—of which 284 were voted

registration, 40 were rejected and 21 granted permission to take 12B examination.

Of those passed to registration 162 were under the provisions of Section 12a of the Engineering Registration Act, 3 under 12b, 85 under 12c, 9 under 18 (on reconsideration), and 25 under Section 21.

During the year the Board gave oral and written examinations to 11 applicants for registration under Section 12b, of whom 3 were passed to registration and 8 failed to pass the examination.

During the year the Board acted on 20 requests for reconsideration from Section: voted to change the Section on 16 and to make no change on 4. It reconsidered requests for reconsideration on 28 rejected applications, voted 16 to registration. granted registration under Section 12b subject to passing of the required examinations to 3, and voted to make no change in its earlier ex-findings in 9 cases. Reconsidered 31 requests for change in branch, granted 28 changes and voted to make no change on 3.

Personal appearances before the Board were had by 15 applicants each of which hearings was of approximately thirty minutes duration.

Reports were received by the Board during the year of the deaths of 20 registered professional engineers.

Before the Board for action at this time are a total of 124 applications of which 27 are incomplete as to reference letters, 28 are in the 12b (examination) file, and 69 are ready for inspection by the Board.

Since Professional Engineering Registration was legalized in Texas January 1, 1938, the Board has passed on a total of 6092 applications, of which 5294 were passed to registration and 798 were rejected. Of those who were passed to registration 26 have registered under a section other than that of their original registration. Of the total of 5294 voted registration 2730 have been passed to registration under Section 12a of the Act (graduate engineers), 93 under Section 12b (in which section the passing of written examinations is required), 966 under Section 12c (long experience and responsible charge of important engineering work and under which applications could be received by the Board for five years only after the passage of the Act), 1279 under Section 18 (under which applications could be received by the Board for one year only after passage of the Act), and 226 under Section 21 (reciprocity from other states or the National Bureau of Engineering Registration).

At its regular meeting of September 6, 1941, officers elected to serve the Board for the ensuing year, and they have so served with the exception noted hereafter, were Chairman J. S. Hudnall of Tyler, Vice-Chairman A. F. Mitchell of Corsicana, and Secretary F. E. Rightor of San Antonio.

The terms of Mr. Ed. C. Connor and Mr. George R. Brown expired on September 24, 1941 and Governor Coke Stevenson appointed Mr. J. B. Thomas of Fort Worth and Mr. E. W. Pittman of Beaumont as members of the Board for six year terms to succeed Mr. Connor and Mr. Brown.

Mr. Thomas qualified on October 24, 1941 and attended his first Board meeting on December 11, 1941. Mr. Pittman qualified on October 25, 1941 and attended his first Board meeting on October 26, 1941. They have served on the Board since their appointment.

The death of Secretary F. E. Rightor on March 1, 1942 created a vacancy on the Board. A special meeting of the Board was called by Chairman Hudnall on March 4, 1942 at which time Carl L. Svensen of Lubbock was elected Secretary and the Chairman was directed to notify the Governor of the vacancy on the Board due to the death of Mr. Rightor. Mr. Datus E. Proper of San Antonio was appointed by Governor Stevenson to serve the unexpired term of Mr. Fred E. Rightor (deceased).

Mr. Proper qualified on March 13, 1942 and attended his first Board meeting on March 27 and 28, 1942. He has served on the Board since his appointment.

The Board extends its appreciation to Governor Stevenson for the prompt attention given to the appointment of Board Members and in particular for the care and thought given to this matter as evidenced by the appointment of outstanding engineers.

During the year the Board suffered a great loss by the sudden death on March 1, 1942 of its Member-Secretary, Mr. Fred E. Rightor. At the first meeting of the Board on September 24, 1937 in Austin, Mr. Rightor was elected Secretary. By his executive ability, efficiency, and energy he organized and developed the work of the Board to the extent that the Texas Board obtained a position of the highest recognized standing among the Engineering Registration Boards of the country.

Included as a part of this report is a copy of the July 1942 Roster of Registered Professional Engineers in Texas, which was issued under provisions of Section 11 of the Same Act as brings out this report. This year's Roster was in the mail August 8, 1942, 4902 copies having been sent out, one having gone to you at that time.

The Roster carries, in addition to listings of the Registered Professional Engineers of Texas, copy of the Engineering Registration Act of Texas, of the By-Laws and Rules and Regulations of the Board, of the Code of Ethics to which all applicants for Professional Engineering Registration in this State subscribe, list of accredited undergraduate engineering curricula of the Engineers' Council for Professional Development, information as to Reciprocal Registration, and statistics as to Texas' registration.

The Board was pleased to have had continued opportunity to assist in National Defense Work by giving out information as to Professional Engineers registered in the State, by cooperating with military and engineering leaders, furnishing affidavits of professional registration and in any other ways possible.

The State Departments have shown that same friendly cooperation which they have given the Board since its inception which cooperation is sincerely appreciated. Please be assured that the Board will continue to carry on in an honest effort to give to the people of Texas all protection possible under the provisions of Senate Bill 74, Acts Regular Session, 45th Texas Legislature.

REGULAR MEETING—October 8th

A regular meeting of the Board was held in the Board Offices, 511 Ewell Nalle Building in Austin on September 17, 18 and 19, 1942. Officers elected for the ensuing fiscal year were: Mr. A. F. Mitchell of Corsicana, Chairman; Mr. J. B. Thomas of Fort Worth, Vice-Chairman, and Mr. Carl L. Svensen of Lubbock, Secretary (Re-elected).

Business transacted at this meeting included the registration of sixty-one applicants, which brings the total number of applicants passed to registration to 5324.

Examinations were held on September 18 and 19 for applicants for registeration under Section 12(B) of the Registration Act. Nineteen applicants appeared for examination.

Information on the transactions of the Board for the fiscal year—September 1, 1941 to August 31, 1942 includes the following:

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Special Meeting—October 19th

The Texas State Board of Registration held a called meeting in Houston on Monday, October 19th. Oral examinations and hearings for applicants in Houston and vicinity were held. Twenty-seven applicants were passed to registration. A considerable amount of Board business was transacted. Included in this was a motion permitting *courtesy examinations*:

> "An applicant for registration under Section 12, Subsection (B), who cannot conveniently come to Texas for the examination may be allowed to take it with one of the other Member Boards of the National Council of State Boards of Engineering Examiners, with the permission of, and under the supervision of, said other Board, provided at least four members of the Texas Board give written approval."

In this the Texas Board will cooperate with other State Boards. Florida was the first State Board to pass a resolution making provision for such courtesy examinations. Maryland has just made arrangements to give a courtesy examination to a Texas applicant who is located in Washington, D. C.

A number of registered engineers called at the Board meeting and discussed matters of import to engineering registration.

* * * * *

Thank you Secretary Svenson!

WEST VIRGINIA

Society Active

Despite the exigencies of war, the West Virginia Society remains a most active organization. Its annual meeting presented an interesting program including addresses by Dean E. A. Holbrook, President of the National Society of Professional Engineers and Col. Frederick A. Muhlenberg of the U. S. Corps of Engineers. Visitors from neighboring states, including Secretary Larson of N.S.P.E. were in attendance.

"West Virginia Engineer" Notes

From that excellent publication, THE WEST VIRGINIA ENGINEER, come the following items:

How Far Have We Gone?

It's always interesting and instructive to check back and see how far an organization has progressed In other words, how near has the goal been approached which was established by its founders. We think this applies to the West Virginia Society of Professional Engineers. Way back in 1934, a splendid group of projects was listed by the organization. We think it will be worth the time of every engineer to study this list, note what accomplishments have been reached, and then see what there remains to be done. We believe that few engineers would question that these thoughts are worthy of the support of every one who has the interest of this Society at heart.

1—Perfection of the State licensing law to make it fully effective.

2—Elimination of present exemptions in the State licensing law.

3—Every Engineer in the State to be a licensed Professional Engineer.

4—Every licensed Professional Engineer to be a member of the State Society.

5—A Chapter in every center of population.

6—The Designation "Engineer" permitted only to licensed Professional Engineers.

7—More adequate enforcement of the licensing law.

8—All income from licensing fees to be used for administration, enforcement and direct benefits.

9—A full-time paid Secretary.

10—Official recognition of the State Society in the administration of the licensing law.

11—Correction of any local laws, ordinances or rulings conflicting with the State licensing law.

12—Stopping any legislation tending to restrict the rights of practice of Engineers.

13—Stopping all practice of Engineering by non-engineers.

14—Organization of a State Classified Service list on a proper basis of titles, qualifications and salaries for Engineering positions.

15—Proper recognition of the Engineers in private practice.

16—Stimulation of public works and construction programs to relieve unemployment.

17—A persistent drive against fee competition and free engineering services.

18—Education of officials and the public on the proper way to engage Engineering services.

19—Violations of professional ethics to be made legal ground for revocation of license.

20—Cooperation with the State Registration Board in eliminating the unqualified and the unfit.

21—Representative of Engineers in the organizations of government.

22—Appointment of Engineers on public boards and committees.

23—Election of Engineers in public office.

24—Representation of Engineers in planning State and local legislation involving governmental efficiency, public works, and Engineering interests.

25—Retaining of best legal counsel to represent the interests of the Profession in legislation, enforcement, and civic affairs.

26—Furnishing speakers to address audiences on public and professional problems.

27—A program of newspaper publicity to acquaint the public with the accomplishments, qualifications, and ideals of Engineers.

28—Protection of the economic interests of Engineers in public employ and private practice.

29—Cooperation with Engineering colleges.

30—Selective limitation of engineering students.

31—Strengthening the curricula of the Engineering colleges in cultural studies and economics.

32—Simplifying and unifying the system of Engineering degrees.

33—Encouraging the requirement of cultural college training as a prerequisite for admission to Engineering schools.

34—Qualification for license, for membership in national technical societies, and for professional degrees to be made coordinated and simultaneous.

35—Establishing a system of counsel and guidance for prospective Engineers extending from high school to final admission into the Profession.

36—Unification of high qualification standards for licensing in all States.

37—Simplification of procedure for reciprocal licensing in all States.

38—Extension of Engineers' licensing to all States.

39—Unification of State Societies of Professional Engineers.

40—Recognition of the scientific qualifications of Engineers in the analysis of social, economic and governmental problems.

41—Stimulating governmental appropriations for valuable Engineering surveys and researches.

42—High standards of compensation for Engineering services.

43—Maintaining a united front for the Engineers of this State.

44—Developing a clearly-recognized line of demarcation between the Engineer and the non-engineer.

45—Developing opportunities for public service by Engineers.

46—Developing the spirit of all Engineers being united in one professional brotherhood.

Chapter News

Under this heading are reports from Southeast, Charleston, Eastern, T. Moore Jackson, Fairmont, Huntington, Morgantown, Parkersburg, Northern Panhandle and Mingo Chapters. These reports list the officers and generally indicate the status and activities of the several units. They are worth noting.

MEMBERSHIP REPORT

Chapter	Members	Assoc.	Juniors	Total
Bluefield	52	41	—	93
Charleston	187	79	21	287
Clarksburg	40	3	2	45
Elkins	22	8	3	33
Fairmont	22	35	—	57
Huntington	29	33	3	65
Morgantown	24	19	19	62
Parkersburg	14	14	—	28
Wheeling	28	24	3	55
Williamson	9	4	—	13
Totals	427	260	51	738

(This includes members in good standing in the 10 clubs, including the 120 members who are shown above as unpaid. These members will be carried on the Society rolls as members until the end of 1942, according to the usual custom.)

The West Virginia State Planning Board

The material on this subject, prepared by the Executive Secretary of The Board, outlines the scope and problems of this agency and includes a comprehensive and instructive organization chart.

Society Nominates Officers

Following is a list of the persons designated by the Nominating Committee to serve as officers during 1943. Insomuch as the balloting closed on November 20th, the nominees are presently officers elect.

for PRESIDENT
O. M. Jones, Glen Ferris
for 1st VICE-PRESIDENT
W. S. Downs, Morgantown
for 2nd VICE-PRESIDENT
Charles Snyder, Fairmont
for TREASURER
Robert Williamson, Jr., Charleston
for DIRECTOR—1943
George C. Barnes, Jr., Williamson
for DIRECTORS—1945
E. D. Baker, Elkins
J. M. Clark, Sr., Charleston
Clarence Churchill, Clarksburg
J. N. Wallace, Huntington

Salary Schedule Reported

In progress reports submitted to the State Society, two separate Committees on Salary Schedules indicate that a study of previous proposals, made by various engineering groups, reveal considerable differences in both qualifications and salaries in available schedules. The suggestions of these Committees, which are published in The West Virginia Engineer, deserve the consideration and comments of the Engineers of West Virginia. To an outsider, the salaries appear too small.

West Virginia University
Dedicates Mineral Industries Bldg.

With impressive ceremonies attended by high officials of government and industry and by representatives of educational, scientific and professional institutions, the new Mineral Industries Building of the University was dedicated on October 16th and 17th..

In his public announcement, Governor Matthew M. Neely advised that plans for Colleges of Medicine and Aeronautical Engineering were in the making. Various scientific groups held special meetings during the two day session.

WISCONSIN

Board Registers Twelve

Through the courtesy of the Registration Board comes the following announcement:

"At its meeting in October the Wisconsin Registration Board of Architects and Professional Engineers registered the following as professional engineers in Wisconsin:

Bergstrom, Carl V.	Madison, Wisconsin
Brokaw, Max P.	Madison, Wisconsin
Copeland, Mark W.	Wilmington, Delaware
Daniels, Francis W.	Cleveland, Ohio
Hopwood, Robert H.	Milwaukee, Wisconsin
Kutchera, Don H.	Milwaukee, Wisconsin
Knutsen, Harold W.	Milwaukee, Wisconsin
Lincoln, Allan B.	Baraboo, Wisconsin
Manierre, George	Milwaukee, Wisconsin
Reuss, Willard H.	Bellevue, Pennsylvania
Peters, Donald C.	Columbus, Nebraska
Whalen, William E.	Toledo, Ohio

Very truly yours,
Josephine V. Hughes, *Acting Secretary*

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Shore-Dredge

• VALVES
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Forged Steel
Cast Steel
and
Special
Alloys

• FITTINGS
Welding
Tube Turns
Fabricated
Cast Iron
Forged Steel
Cast Steel
Malleable
Dresser
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THE ENGINEER AS A CITIZEN

(*Cont. from Page 7*)

more than a privilege, it is a duty, and a duty that is too often neglected. It is the duty of the citizen to bear arms in defense of his country, but we have learned that we cannot safely leave this to voluntary action. It is also the duty of the citizen to pay taxes and yet if this were optional it is very doubtful if we would collect enough revenue to defray the cost of government. The duty to vote is as fundamental as the duty to bear arms or to pay taxes and it may well be doubted if we can much longer afford to leave this purely to the convenient whim of the voter. The thought is expressed with increasing frequency that there should be some reasonable penalty imposed on the non-voter. The view of the engineer on this subject might well prove very enlightening.

Again, we, under our present election system, vote on personalities rather than on issues. In every election contest the personalities involved and the issue advanced are combined in such a confusing manner that it is almost impossible for the voter to cast an intelligent vote and it is equally difficult for even the most experienced political observer to interpret the result of any election after the returns have come in. Would it not be possible to introduce a reform whereunder it would be possible to vote on one issue at a time, devoid of the complications attaching to personal ambitions? One would like to see the engineer apply his great mind to that problem. The evils inherent in the present system are too well known and too numerous to permit of enumeration. Very obvious benefits would follow from a reform in this vitally important matter. Under the present system men who agree on practically everything from day to day between elections cancel each other's votes on election day. We doubt if our country can stand very much more of this inconclusive form of balloting.

How shall we finance our political party activities and our election contests? This is a problem of very live interest to the general public as well as to the political managers and workers and it has been the fruitful source of much of the misunderstanding between the engineer and the politicans. It may be said that the present methods are not satisfactory to anybody but until better methods have been devised those that have proven workable, even if objectionable, must be retained. Obviously it takes money to finance an election contest and such money can not be obtained by passing the hat on the street corer. If this money can not be obtained from good people it must me obtained from bad people; if it can not be obtained from individuals it must be obtained from corporations. Many of our governmental evils proceed directly from this cause. It is a strange and somewhat sad commentary upon the citizenry in general that people are even more neglectful of their responsibility in this connection than they are with reference to voting. It is probable that a very large percentage, perhaps even a majority, of the American people never contribute a single penny to the cost of carrying on necessary political work under a government such as ours. Yet these people feel entirely free to complain bitterly about methods which are employed and results which are secured. Like other people the engineer has a responsibility in this connection which he can not hope to escape merely by refusing to face a painful or disagreeable fact. This is especially true since the engineer in ever increasing numbers is a public employee who has much to gain from the favor and much to lose from the disfavor of those actively interested in maintaining our political processes and administering our form of government. Since the engineer is so directly and so vitally concerned in this matter he should give his best attention to the proper solution of this rather perplexing problem.

All these and many similar problems that could be mentioned if space permitted affect the engineers of this country individually and collectively. My best wish for the engineer and the public is that he will cast off his inhibitions and complexes and bring to bear his fine character and great talents in cooperation with other citizens to the urgently important task of finding the proper answers to these great public questions with which our generation is confronted. For too long the engineer has been content to follow; he should lead. For too long he has done the bidding of lesser men; he should "ride the whirlwind and direct the storm."

SUGGESTED OATHS

(*Cont. from Page 10*)

will I go for the benefit of the sick, refraining from all wrongdoing or corruption, and especially from any act of seduction, of male or female, of bond or free. Whatsoever things I see or hear concerning the life of men, in my attendance on the sick or even apart therefrom, which ought not to be noised abroad, I will keep silence thereon, counting such things to be as sacred secrets.

Lawyers Oath—Ohio

I do solemnly swear: I will support the Constitution of the United States and the Constitution of the State of Ohio;

I will maintain the respect due to courts of justice and judicial officers;

I will not counsel or maintain any suit or proceeding which shall appear to be unjust, nor any defense except such as I believe to be honestly debatable under the law of the land;

I will employ for the purpose of maintaining the causes confided to me such means only as are consistent with truth and honor, and will never seek to mislead the judge or jury by any artifice or false statement of fact or law;

I will maintain the confidence and preserve inviolate the secrets of my client; and will accept no compensation in connection with his business except from him or with his knowledge and approval;

I will abstain from all offensive personality, and advance no fact prejudicial to the honor or reputation of a party or witness, unless required by the justice of the cause with which I am charged;

I will never reject from any consideration personal to myself, the cause of the defenseless or oppressed, or delay any man's cause for lucre or malice. So help me God. ***Used in State of Ohio***

REGISTRATION IN NATION'S CAPITAL

(*Cont. from Page 15*)

or offering to practice herein the profession of engineering, when such practice does not exceed in the aggregate more than thirty days in any calendar year; provided, such person is legally qualified by registration to practice the said profession in his own state or country in which the requirements and qualification for obtaining a certificate of registration are not lower than those specified in this Act; or

(c) The practice of a person not a resident of and having no established place of business in the District of Columbia, or who has recently become a resident thereof, practicing or offering to practice herein for more than thirty days in any calendar year the profession of engineering, if he shall have paid the fee required by this Act; provided, that such a person is legally qualified by registration to practice said profession in his own state or country in which the requirements and qualifications for obtaining a certificate of registration are not lower than those specified in this Act. Such practice shall continue only for such time as the Board requires for the consideration of the application for registration; or

(d) The work of an employee or a subordinate of a person holding a certificate of registration under this Act, or an employee of a person practicing lawfully under Paragraphs (b) and (c) of this Section; provided such work is done under the direct responsibility, checking, and supervision of a person holding a certificate of registration under this Act or a person practicing lawfully under Paragraphs (b) or (c) of this Section; or

(e) The practice of officers and employees of the Government of the United States but only while engaged in the practice of the profession of engineering, for said Government.

SECTION 23. If any Section or Sections of this Act shall be declared unconstitutional or invalid, this shall not invalidate any other Sections of this Act.

SECTION 24. All laws or parts of laws in conflict with the provisions of this Act shall be, and the same are hereby, repealed.

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